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THE PASSING OF THE RECITATION

BY
V. T. THAYER

PROFESSOR OF PRINCIPLES AND PRACTICE OF EDUCATION
THE OHIO STATE UNIVERSITY

WITHDRAWN

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PREFACE

It requires but a hasty survey of the educational literature of recent years to reveal an increasing interest on the part of students of education in new methods of teaching. Traditional procedures, as embodied in what is generally termed the recitation method, are found to be out of harmony with the objectives of modern education. These procedures seem to have developed under the dominance of a psychology of learning no longer accepted and are the expressions of social ideals which no longer accord with the fundamental aspirations of democratic citizenship. For these reasons the limitations of the recitation method have been repeatedly pointed out and enthusiastic advocates of reform have vigorously promoted new methods. Individual teachers and individual institutions, as well as entire school systems, have become known as advocates and exponents of some one or more of these new departures.

In the course of this very stimulating development in educational practice too little effort has been directed to the task of relating practice consistently with consciously formulated theory. For this reason it has seemed worth while to attempt a study which sets forth the educational principles and assumptions that underlie traditional teaching; and which indicates in what respects these new methods are reactions against early presuppositions and in what ways they are outgrowths of recent developments in biology, psychology, and sociology.

Such, in the main, is the purpose of this book. Part I presents briefly the origin of the recitation method and the

dominant educational principles which functioned at the time of its inception and development. Part II describes certain fundamental principles of present-day thinking and procedure that contrast with these early views. Thus, in contrast with the early conception of education as primarily concerned with the acquisition of information, we have today an emphasis upon education for character building; as against the theory that learning is a process in which impressions are written upon a passive mind, the theory that learning is an active process; and in contrast with the view that the school is a selective institution we now think of it as concerned with the preparation of all boys and girls for an intelligent participation in democratic living. In Part III such representative new methods of teaching as individual instruction, supervised study, the socialized recitation and the project method are examined with the purpose of determining their peculiar contributions to constructive teaching procedure. It is one of the theses of the book that each of these methods represents a reaction against one or more limitations in the recitation method; and that while it is suggestive for progress, it is not a self-sufficient method. Accordingly, in Part IV, an endeavor is made to weave the positive contributions of these various methods into a consistent pattern and to discuss in some detail the characteristics and the essentials of procedure that should govern the different phases of the teaching and the learning process.

In Chapters IV to VIII it has been necessary to go rather thoroughly into the development of the conception that learning is an active process. In case the reader finds this discussion too technical, it should be said that the trend of the discussion in the book can be followed even though these chapters are omitted. They are in-

cluded, however, for those readers who will wish to trace somewhat critically the development of this theory and its implications in present-day theories of the learning process.

Acknowledgment of indebtedness is gratefully made to the publishers and the authors whose works are cited in the discussion. In addition to the authors specifically quoted, however, special indebtedness must be acknowledged for the helpful criticism and suggestions received from the author's colleagues while the manuscript was in process of preparation. Mention should be made in particular of B. H. Bode, H. B. Alberty, H. Gordon Hullfish, E. W. Pahlow, and P. W. Stansbury.

V. T. THAYER

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PART I

THE ORIGIN OF THE RECITATION

CHAPTER I

THE ORIGIN OF THE RECITATION

When the historians of education do equal and exact justice to all who have contributed toward educational progress they will devote several pages to those revolutionists who invented steel pens and blackboards. They will tell us that these men were the indispensable instruments in the substitution of group recitations for individual instruction.

Prior to 1800 instruction in both elementary and grammar schools was prevailingly individual. The master's chief occupation seems to have been that of whittling goose-quills, and while school legislation usually provided that at twelve or thirteen years of age the pupil should whittle his own pens, we are told that, like many laws of today, these regulations were seldom enforced. The results of this procedure were, of course, wasteful in the extreme. Not only was the master unable to give attention to the pupils' study habits, but the practice of calling pupils to the master's desk, there to recite individually, severely limited the amount and the character of attention devoted to each pupil. Henry K. Oliver describes as follows his experiences as a pupil in the Boston reading school of 1800: "I received about twenty minutes of instruction each half day,

and as school was kept three hundred and sixty minutes daily, I had the privilege of forty minutes' worth of teaching and three hundred and twenty minutes' worth of sitting still, if I could, which I could not, playing, whispering, and generally wasting time, though occasionally a picture book relieved the dreary monotony." [1]

This system of individual teaching persisted much later than is generally supposed, much later than the inventions we have mentioned or the contributions of the monitorial system necessitated. Grimshaw, writing in *Barnard's Journal* as late as 1855, "deplored the time wasted by the old-fashioned and false method of teaching individuals instead of classes. 'I notice,' he says, 'in my visits to the schools many pupils sitting idle; sometimes part of the school is asleep, or what is worse, making a noise and disturbing the remainder who desire to be industrious.'" [2]

These illustrations of early methods of teaching will throw light upon the disciplinary problems of the teacher, and we can well understand why it was advisable for Mr. Means, in the *Hoosier Schoolmaster*, to address the new applicant for the position at Flat Creek schoolhouse in these words:

"You can begin right off a Monday. They ain't been no other applications. You see, it takes grit to apply for this school. The last master had a black eye for a month. But, as I wuz sayin', you can jist roll up and wade in."

The invention of steel pens freed the master from the deadly routine of preparing pens for his pupils and made it possible to supervise and direct their writing. But the invention of blackboards was an additional step forward.

[1] Parker, S. C., *History of Elementary Education*, Ginn and Co., 1912, p. 88.

[2] Quoted by Breslich in the Thirteenth Yearbook of the National Society for the Study of Education, p. 34, from Holmes's *School Organization and the Individual Child*, p. 13.

He could now gather together a few pupils who were at the same stage of progress and present to them new materials and clear up common difficulties. He could, in short, teach them in groups. Barnard tells of his surprise upon viewing a blackboard for the first time. It was in the winter of 1813–1814, during his student days at Harvard. While on a vacation trip to Boston he visited a mathematical school and there saw a group of pupils gathered about a blackboard. It was his first experience with what he called "analytical and inductive teaching."

These two reforms were indispensable for a more vital teaching method, but they provided merely the raw materials for the organization of class instruction. If we would adequately understand the evolution of teaching procedure, we should study in some detail the creative work of Joseph Lancaster and his fellow monitorians. We have only to read their manuals in order to appreciate how fully the general characteristics of classroom method were worked out by these predecessors of job analysis. It is to Lancaster that we must attribute the saying, "A place for everything and everything in its place." The most insignificant detail did not escape him. Most of us have seen pictures of the monitorial school and we may have noticed the children's hats attached with cords to their shoulders in order to save both time and cloakroom space. The children were organized into small groups, usually of ten, and each in charge of an older pupil monitor. They marched to and from their classes in military fashion; they recited in unison on command, and they responded as a group to such instructions as, "hats off," "show slates," etc. David Salmon writes: "To avoid, for instance, the waste of time involved in calling the name of the whole school to discover the two or three absentees, each boy

was given a fixed number. Corresponding numbers were printed in a row on the wall; the class was marched into position; each boy took his place under his own number, and the vacant numbers instantly showed who were missing." [1]

Not only were the details of class organization and management worked over in detail but subject matter was likewise given a carefully graded organization for purposes of class instruction. Thus, in arithmetic, "Lancaster had the following plan: The basis of progress was placed in a thorough knowledge of the tables. In every new rule the examples were at first short and easy, increasing in length and difficulty with the power of the learner. Each class had a definite number of examples which were written in a book kept by the monitor; others were worked over and over again until they could be worked with facility and dispatch. In teaching a new rule, a monitor dictated an example; he then worked it out, the scholars following him on their slates; then the slates were cleaned, the example written on the blackboard, and each boy in turn took a part of the operation. This was persisted in until the mode of working was understood." [2]

The teaching results under this system, when contrasted with the methods of individual instruction, were startling. David Salmon, in his book on Joseph Lancaster, relates an incident in which an anxious and perhaps an embarrassed father called upon his local pastor to protest against the practices of the monitorial school. This parent objected to the rapid school progress of his boy. Since he recalled with what difficulty and delay he himself had

[1] Salmon, David, *Joseph Lancaster*, Longmans, Green and Co., 1904, p. 9.
[2] Gill, John, *Systems of Education*, D. C. Heath and Co., 1887, pp. 192–193.

learned his arithmetic, he was convinced that the master of the monitorial school must be exercising an evil magic in teaching the same operations so rapidly.

To be sure, from a modern standpoint, the method was not without fault. Instruction was mechanized. Mere performance and the memorization of facts were commonly confused with genuine learning. Frequently the processes mastered were mastered as forms without being understood by either the pupil or the monitor. The monitor's manual in arithmetic consisted of examples and a key which revealed not merely the complete solution of a problem but the detailed steps by means of which the answer was obtained. Thus, "If the question were one of simple addition, for instance, the monitor might read from the key: 'First column: 7 and 9 are 16, and 3 are 19, and 5 are 24. Set down 4 under 7 and carry 2 to the next column'; and the class would thereupon set down 4 as told. It is doubtful whether monitor or pupils would understand the reasons for them." [1]

If one were to attempt to characterize in a phrase the monitorial system, in contrast with the method of teaching it displaced, he might say that it attempted to have ten little voices chirrup where one voice chirruped before. Such a characterization, however, while accurate in the main, is nevertheless in danger of blurring the monumental contributions of the monitorial system. Parker [2] has described how Lancaster studied in detail not only such matters as the mechanics of instruction and elimination of waste in school routine, but also the effective construction of schoolrooms and teaching apparatus, the flexible

[1] Salmon, David, *op. cit.*, p. 12.

[2] *The History of Modern Elementary Education*, Ginn and Co., 1912, pp. 101–107.

classification of children, and the motivation of school work, largely through incentives of competition.

For all these things teachers are more heavily obligated than they usually appreciate. Were we to discuss adequately the contributions of the monitorial system, we should indicate not only the fact that it gave to the recitation system the structural outlines which it still retains, but it laid as well the basis for a free public education with professionally trained teachers. Under no other method could universal and free education have been envisaged; the expense would have seemed prohibitive. Thus in 1819 there were ten monitorial schools in Philadelphia, each with one teacher in charge and an average of 284 pupils per teacher. As late as 1834 in the same city the average number of pupils per teacher was 218. The monitorial system alone made it economically feasible to undertake the public education of children.

But such a huge per teacher enrollment also made clear the necessity for training both teachers and monitors. It was clearly recognized under these conditions that teaching required skill and a resourcefulness that could not spring unaided out of a knowledge of subject matter or a "natural gift" for teaching. No longer would it do for a writer of a textbook to preface it with the remark which Edmund Coote inserted in the introduction to his *Text Book for Elementary Schools:*

"To the unskillful, which desire to make use of it for their own private benefit, and to *such men and women of trade as Tailors, Weavers, Shopkeepers, Seamsters, and such others as have undertaken the charge of teaching others* (with this textbook) *thou mayest sit on thy shopboard, at thy books or thy needle, and never hinder any work to hear thy scholars,* after thou hast made this little book familiar to thee." [1]

[1] Quoted by Parker, S. C., *The History of Modern Elementary Education,* Ginn and Co., 1912, p. 54.

To the monitorial system, then, must we give major credit for originating and developing the fundamental structure of the recitation. It is true, of course, that the Pestalozzian and Herbartian influences have profoundly modified education since Lancaster, but when we give attention to the essential outlines of the recitation system, Pestalozzian and Herbartian contributions will seem chiefly to have flowed into molds already prepared and to have adjusted themselves to these characteristics.

Take, for example, Pestalozzian methods. In this country these date from their introduction in Oswego, N. Y., in 1860. Two outstanding features of Pestalozzian procedure were: (1) to start with the experiences of children, observation and clear ideas; (2) to proceed by means of carefully graded oral instruction to systematic and organized knowledge. In this process the laws of child development were to constitute the criteria for selecting and presenting the materials for learning. Thus child experience was intended to replace exclusive dependence upon books, and the teacher's direction of learning activity to replace a passive method of hearing recitations.

These ideals effected profound changes in the elementary school course of study. Arithmetic was reorganized on the basis of object teaching so that pupils passed gradually from the observation of sensible objects to an understanding and manipulation of abstract numbers. Mental arithmetic assumed a prominent place in school work. Object teaching likewise led to oral instruction with heavy emphasis upon oral language training. Geographies of a "dictionary-encyclopedia" type were replaced by home geography; and natural science as an outgrowth both of object teaching and oral language received recognition.

When we turn, however, to the methods of teaching into

which the Pestalozzian system crystallized we discover a dismal formalism. It is said that a French-Swiss officer once remarked to Pestalozzi, when the latter was explaining his methods, "I see, you want to mechanize instruction." Whether or not Pestalozzi believed his psychological procedure was identical with mechanical routine, there is no doubt of the fact that his followers at least succeeded in mechanizing instruction. And they mechanized it in the direction of formal group work which in the hands of the average teacher became deadly routine. Parker states of oral instruction that a proper method of questioning became the sole requisite and a teacher's knowledge unimportant. Frequently a teacher "simply questioned the children about their experience and told them nothing." [1] No better indication of the dangers resident in this method can be found than in the following "model" lesson printed in Elizabeth Mayo's *A Manual of Elementary Instruction for Infant, School and Private Tuition.*

A PIECE OF BARK

"What is this? A piece of bark. All look at it. Where do we find bark? On trees. On what part of trees? Look and see. (The teacher brings in a piece of the stem of a tree on which the bark still remains.) On the outside. Repeat together—'Bark is the outer part of the stems of trees.'

"Look at the bark; what do you perceive? It is brown. Repeat—'Bark is *brown.*' Look again; is it like glass? No, we cannot see through it. What can you say of it then? We cannot see through bark. Compare it with glass. It does not shine. When anything does not shine at all, it is said to be dull. What is the bark? It is dull. Repeat—'The bark is *dull.*' Show me some things in the room that are dull. Now feel the bark. It is *rough.* And what more? It is *dry.* Now look: (The teacher separates the fiber.) It has strings or hairs. These strings or hairs are called fibers, and we say the bark is fibrous. Repeat—'The bark is *fibrous.*' Some plants have very

[1] Parker, S. C., *op. cit.*, p. 329.

fibrous stems, and are very useful to us on this account; here are some of the fibers of hemp; and here are some of flax, which supplies much of our clothing. I think you can find out something more if you feel the bark again. Yes; it is *hard.*

"Now repeat all you have said. ' Bark is the *outside covering of the stems* of trees: it is *brown:* we cannot *see through it: it is rough, dull, dry, hard,* and *fibrous.*'" [1]

The characteristic tendencies in Pestalozzian teaching in this country are very well summed up by Dr. Mossman in her monograph on *Changing Conceptions Relative to the Planning of Lessons.* She writes: [2]

"Examination of books, magazines, and reports of educational meetings published in the three decades following the introduction of object teaching at Oswego, shows its wide acceptance as a definite method and form of instruction. It was based upon a psychology which stressed prominently the significance of perception in learning. It was based upon a theory of pupil acceptance of subject matter handed to him. It made very slight provision for teacher initiative and no provision for pupil initiative. It assumed teacher dictation of every step in the learning process."

Herbart's influence on classroom work has likewise tended in practice to strengthen rather than to weaken group methods of instruction and thus to perpetuate the recitation system. He too has added new materials to the school curriculum. The prominence, for example, of the social sciences in the present curriculum and the emphasis of these subjects upon training for citizenship are logical developments, modified to be sure by present needs, of Herbart's emphasis upon moral development as the supreme aim of education and the use of historical materials for the realization of these ends.

[1] Quoted by Lois Coffey Mossman in *Changing Conceptions Relative to the Planning of Lessons,* Teachers College Contributions to Education, No. 147, 1924, p. 4.

[2] *Op. cit.,* p. 5.

"Virtue" was for Herbart the final aim of education. As a means for realizing this end he stressed the significance of interest and apperception. Had pedagogues taken these doctrines seriously and applied them to the learning of individual children, they would have been impressed with the significance of individual differences in pupils' backgrounds and interests and the consequent necessity for modifying traditional group instruction. The outstanding effects of the Herbartian movement upon teaching method have been until recently, however, to accentuate the importance of the teacher's activity and to mold the performances of children according to stereotyped patterns. Thus they have taken Herbart's description of the way the mind works in organizing a subject as a whole and converted it into a method of instruction which requires that children, in the acquisition of new knowledge, move in lock-step fashion through five steps in learning.

Even so original and independent a disciple as Professor W. C. Bagley lends encouragement to this tendency when discussing the Inductive Lesson in his *Educative Process*. Thus he states that the "dominant method" in *Preparation* should be the question and answer procedure, and the time devoted to preparation should not involve "more than one-fifth of the time alloted to the entire lesson." In the course of *Presentation*, the second step, pupils secure their facts directly and indirectly, from "lecture, textbook, or some other medium of instruction," and consequently the time element varies, perhaps extending over half of the period. The third step, *Comparison and Abstraction*, again calls for the question and answer method with the time varying accordingly as one derives one or more generalizations from the accumulated data. Professor Bagley pauses, however, to urge that if possible all five

steps be completed in one day. Consequently, the conscientious teacher will hurry on to the fourth step, *Generalization*, which consists in summing up in a class definition the results of previous labors. "At no time," writes Professor Bagley, "should the step cover more than three or four minutes." The last step, *Application*, like *Presentation*, may be either direct or indirect and consequently is somewhat elastic in method and consumption of time.

This brief outline of the steps of instruction clearly indicates how Herbartian teaching concentrates the activity and initiative of the classroom in the person of the teacher. Pupils are assumed to think in unison and, in less skillful hands than those of Professor Bagley, all spontaneity is in danger of disappearing.

By and large, this is precisely what has happened. Beginning roughly in 1890 the Herbartian influence tended to dominate theory and practice in normal schools and teacher training institutions. Detailed and careful attention to lesson planning is one of the outcomes of this situation and young teachers have been carefully drilled in methods of teaching in accordance with Herbartian precepts. While the original Herbartian procedure has undergone progressive modification, emphasis upon the teacher's technique and detailed lesson planning for group teaching of a formal and stereotyped character has not been relaxed. These plans include pivotal questions, devices for securing and holding group attention, advanced assignments, etc. It is not uncommon for public schools under well-organized supervision to require teachers to write out in detail their recitation plans several days or a week in advance, from which the teacher is expected rarely to deviate. Courses of study indicate the ground to be covered by all pupils within a specified period of time, and the good teacher

exercises his "technique" so that his pupils will arrive at the goal in a body neither before nor after the appointed time.

And thus it is that the developments since Lancaster have led to little more than the pouring of new wine into old bottles. We teach different subjects and we have altered the contents of old subjects. We have originated more economical devices for learning and we have profited from careful studies in the technique of acquiring skill and information. We classify and grade our pupils more skillfully. But withal we have not fundamentally reconstructed the recitation system which Lancaster devised a little more than a century ago.

No one acquainted with American education can seriously question the valuable contributions of the recitation method of instruction. Except for it, as we have seen, we should probably not have universal public education in this country. Consequently we should give all honor to the educational leaders who perfected it as a method of teaching and incorporated it as an integral part of their school organizations. They solved effectively the chief educational problems of their day and laid the basis for future progress.

But when we have granted all this, we have still to face the problems peculiar to our day. We must ask the question, "Is the recitation method best adapted for present needs?" What is invaluable at one stage of development is frequently injurious at another. It is always worth while to raise the question of the suitability of an old tool for the realization of new purposes. It is for this reason that we wish to inquire whether the traditional lock-step method of teaching, with its daily assignments of like tasks for all pupils, is adequately designed to realize present-day educational aims and ideals.

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CHAPTER II

EDUCATIONAL PRINCIPLES TAKEN FOR GRANTED BY THE RECITATION METHOD

A suggestive approach to an appraisal of the recitation method is to ask: What principles of educational procedure were commonly accepted at the time it originated? How do these principles agree with present-day theory? If our educational philosophy has undergone no fundamental change, it is reasonable to suppose that the recitation still meets our needs. On the other hand, if our educational aims and ideals as well as our theory of the learning process are different, we should seek for a teaching method consistent with this new point of view.

1. The Textbook Central in Learning.—The first principle of procedure which we notice as universal at the time of the origin of the recitation system was the identification of schooling with textbook learning. As we have indicated in our description of the monitorial method, teaching consisted in apportioning out sections of the text for study and hearing the pupils recite upon the assignment.

When the writer decided some twenty years ago to take up teaching as a life work, and informed a relative of his decision, he was told: "Well, you will find that much easier than studying. Now you can keep your book open before you and make the pupils recite."

This remark illustrated not merely the traditional procedure in teaching, but one which is still dominant. The speaker merely described the outstanding characteristics

of the recitation system as he had experienced it in the course of his own schooling. Going to school meant reciting from a textbook, and learning was identified with reproducing for the teacher what the book contained.

Why has this dependence upon the text persisted? It may assist our understanding of present conditions to consider some of the reasons for this situation.

They are all intimately related to the dynamic conditions of American life. Change has characterized American life from those early days in which our ancestors first undertook the task of subduing a continent and remaking it according to the patterns of a civilized existence. In this process social classes as well as conditions of living have undergone transformation. No one's status in life has been fixed. As we shall indicate more fully later, the school has been a conscious instrument for raising children above the station in life in which they were born. Consequently, schooling has meant not only learning to read, to write, and to figure, but it has meant as well the acquisition of the necessary powers and information which should function directly toward one's later advancement.

But the teachers who were to act as directors of this progress have been at no time entirely qualified to fulfill their recognized function. They, too, have been in a state of transition. The practice of teaching has been predominantly a transient occupation, a stepping-stone to more desirable careers. Teachers have possessed neither the ambition nor the training to equip themselves adequately for teaching on a professional level. Few, in consequence, would claim to know more than the text. Indeed, it has been no serious reflection upon the qualities of a teacher to have it said, "Some of these problems the teacher himself cannot work."

Teaching as a temporary expedient means a heavy teaching turnover. To this, however, has been added the results of a phenomenal growth in city and rural population so that schools have sprung up overnight and village schools have rapidly expanded into city school systems. A genuine concern on the part of educators for the needs of the pupil has left no other alternative than to prepare a textbook which should offset the teacher's ignorance of subject matter and method. Administrators or supervisors, on the other hand, could insure some degree of continuity and regularity in the education of children only by insisting upon a loyal adherence to the text.

To the changes already enumerated we must add the fact of changes in educational theory and practice. The advocates of Pestalozzian methods, for example, felt constrained to prepare manuals and texts which should indicate how specific subject matter was to be taught under the "new" method. As object teaching developed, books were constructed which indicated in detail the procedure for pupils and teacher. The Herbartian theory of education likewise called for a revolutionary reconstruction of textbooks. Readers, geographies, arithmetics, etc., were prepared in accordance with the principles of the new pedagogy. These texts and the teacher's manual of direction which supplemented them were constructed so that a teacher, without an understanding of the theoretical background that justified her procedure, could nevertheless teach in a fairly acceptable manner. On the other hand, few teachers have felt competent to teach their "own system" without a textbook which exemplified it. Superintendents and principals, who were advocates of methods not exemplified by the books in use, felt it essential to introduce textbooks which agreed with their theories.

Thus it is that supervisors and teachers as well as pupils have grown up in a tradition which emphasizes the central importance of the textbook. It has been thought that the poorly trained or inefficient might lean upon this instrument as a substitute for original effort; but ambitious superintendents and principals have likewise looked upon the text as a means for raising the general level of instruction, and school teachers have felt that the book they put into the hands of their pupils is a chief factor in determining the nature and character and standard of their teaching.

Two incidents in the writer's experience illustrate concretely both the persistence into the present of this dependence upon the text and the serious limitations from an educational point of view which result.

The following assignment of home work was given recently to a girl of ten in a middle western public school: She was to draw from memory an outline map of New England, to trace upon it the state boundaries, and indicate the chief rivers and cities. Following this, she was to memorize a list of New England cities, together with the facts of chief importance regarding each. And, when done with geography, she was to memorize a list of the personal pronouns.

The assignment in this case was not influenced by the fact that many of the cities referred to are relatively insignificant outside of New England. The girl's father is rather intimately acquainted with New England but is unfamiliar with a number of the cities listed. Nor was there evidently any significance for the teacher in the fact that the girl's written and oral language revealed no difficulties in the use of the personal pronouns. Sufficient unto the day was the evil thereof that thus spake the textbook!

The second illustration relates more specifically to the high school. A graduate of the Francis Parker School was describing to a group of advanced students the method of teaching geometry which her teacher had used. "Our teacher," she stated, "frequently had our class work out, as a class exercise, the demonstration of a theorem, and then she would ask us, as a sort of game, to see how many demonstrations of this same theorem we could bring to class on the next day."

One of the students looked at the young woman in astonishment and gasped: "Why, I never knew there was more than one demonstration for a theorem. We always learned by heart both theorem and the demonstration as given in the book."

These two illustrations are typical of a general situation and indicate that teaching is still quite commonly confined to the text, with the result that schooling is divorced from life, and pupils are accustomed to accept on authority conclusions that should otherwise be arrived at. The teacher of the ten-year-old girl followed the assignment suggested in the text without realizing that a geography is written for the country generally and requires abbreviation in some localities and supplementation in others. So, also, did she fail to consider the needs of the child in the study of pronouns. For her as for many others, the information in the book was an end in itself, not a suggestive tool to be used in broadening the horizon of pupils.

To make the contents of a book the be-all and the end-all is, moreover, to substitute uncritical acceptance of what is read for what might otherwise become food for thought. The geometrical theorems in our illustration were not intellectual nuts to crack but barren assignments to be swallowed without scrutiny. The results of such a policy are

peculiarly disastrous in a democracy which by its very nature seeks its standards in the future rather than in a blind allegiance to the past. One of the sacred obligations of the school in all fields of study, is to develop in pupils an attitude of intelligent, critical scrutiny of facts. The function of a school in a democracy is above all to produce citizens of reasoned judgment and open vision, citizens who, because they have been trained in a hardy intellectual climate, cannot be stampeded into hysterical acts either to the right or to the left.

The recent controversies and the legislation regarding the teaching of evolution in schools reveal only too sadly how ingrained has become our conviction that children are to accept uncritically what they read. So long as we operate upon this assumption little should we wonder that state book commissions order deleted from texts all references to evolution. To read, as they see it, is to believe. They cannot conceive the function of the teacher or the textbook to be much different from that of propaganda.

2. The Mind a Wax Tablet.—A method of teaching which places a premium upon information for information's sake, receives confirmation from a conception of learning which likewise prevailed at the time of Lancaster and the monitorial system. According to this view the mind is passive. All knowledge comes in the form of impressions from an external world. Within certain limits the child's mind may be likened to a wax tablet upon which are written the things he comes to know. A second way to express this view of the mind is to compare it with a cabinet full of pigeonholes into which we poke bits of information which are to reside there until needed. Schooling, therefore, does not concern itself with what immediately appeals. Its value is realized later in life. Consequently, the worth-

whileness of school must be taken largely on faith. The child works not because he sees any immediate purpose in doing so, but because his parents or guardians insist that he must, or the teacher believes literally or figuratively that to spare the rod is to spoil the child; or, perchance, because he is ambitious enough to glimpse some far-off and attractive goal which can only be arrived at by following the path which leads through the school.

When educational theory comes under the influence of Pestalozzi and Herbart we find, to be sure, a difference in the psychology of learning; but this difference failed to affect the essential structure of classroom method. John Locke and others, who were chiefly responsible for formulating the theory of learning to which we have just referred, granted some initiative and originality to the mind. They believed it had the ability to work over the raw materials acquired from without and to organize these into new and beautiful patterns. In so far, however, as teachers concerned themselves with developing the child's mind apart from subject matter, they emphasized the value of work for work's sake. And the subject matter that they were at a loss to defend upon the basis of future use, they would justify upon grounds of training value. They thus possessed two convenient standards of values, either of which could be resorted to when advisable. If one challenged the utility in future life of, let us say, the classics, the teachers could plead the training value of working upon materials which developed the faculties of reason, memory, discrimination, and the like. On the other hand, if the training value of specific learning materials was questioned, their usefulness as essential elements in the mental equipment of an adult could be argued.

This twofold theoretical foundation of schoolroom pro-

cedure made possible the absorption of Pestalozzian and Herbartian influences into the recitation system without doing violence to its formalism.

In making this statement we do not wish to detract from the genuine contributions of either Pestalozzi or Herbart. As we have seen in the previous chapter, Pestalozzi introduced object teaching and insisted that learning begins with the first-hand observations of the child. This effected fundamental changes in the organization of subject matter and led to more carefully graded lessons. His sympathetic insight into child nature tended to soften the rigors of the classroom, and his insistence that "The child learns—that is, develops mentally—through his own activities, and only through impressions, experiences, not through words" [1] should have influenced educators more profoundly than it did. Unfortunately, however, we are concerned here with the practice of Pestalozzi and his followers (which frequently belied the master's teaching) and particularly with that practice in so far as it develops logically out of his conception of child life.

This practice perpetuated pupil receptivity. Pestalozzi conceived the child to be endowed with embryo powers and faculties which required for their growth the stimulation of outside materials. These materials were supplied, in the school, primarily by means of objects and teachers' questions. The question method particularly was designed to draw out the child's nature and the visible and tangible evidences of the desired development were the oral responses of the pupil. The temptation to resort to verbalism was, of course, irresistible and when, with the spread of Pestalozzian methods, teachers' manuals were supplied

[1] Quoted from Monroe, Paul, *A Text Book in the History of Education*, 1905, p. 618. By permission of The Macmillan Company.

to inexperienced teachers, it is easy to understand why the transition became one of degree rather than of kind. Take, for example, the following language lesson conducted by Pestalozzi himself as reported by one of his students. This lesson is intended to develop ideas by means of gradually enlarged sentences.

"Thus he would ask: 'Boys, what do you see?' (He never addressed the girls.)
" Answer: 'A hole in the paper.'
" Pestalozzi: 'Very well, say after me:
" I see a hole in the paper.
" I see a long hole in the paper.
" Through the hole I see the wall.
" Through the long narrow hole I see the wall.
" I see figures on the paper.
" I see black figures on the paper.
" I see round black figures on the paper.
" I see a square yellow figure on the paper.
" By the side of the square yellow figure I see a round black one.
" The square figure is joined to the round figure by a large black stripe, etc.'" [1]

The voice may be the voice of Jacob, but the hands are the hands of Esau! The recitation method remains undisturbed.

Similarly with Herbartian theory and its relation to the teaching method it sought to replace. Here, as with Pestalozzi, there is on the one hand a tangible enrichment of curricular materials and on the other a theory of education whose fundamental assumptions have led in practice to a technique which easily fits into traditional molds.

Herbart denies the existence of the innate faculties with which Pestalozzi begins. In the words of John

[1] Guimps, Roger De, *Pestalozzi, His Aim and Work*, D. Appleton and Co., 1890, p. 181.

Dewey: "According to it (Herbartian theory), education is neither a process of unfolding from within nor is it a training of faculties resident in the mind itself. It is rather the formation of mind by setting up certain associations or connections of content by means of a subject matter presented from without."—"The concrete character of mind consists, then, wholly of the various arrangements formed by the various presentations in their different qualities. The 'furniture' of the mind *is* the mind. Mind is wholly a matter of 'contents.'" [1]

This being the fundamental conception of mind, the educational implications are clear. What the child becomes is manifestly a matter of what ideas are presented to it, while the desirable presentation and organization of these ideas constitutes the supreme responsibility of the teacher. The practical program of education thus consists of a conscientious feeding of the child with worthy experiences. In school these are of a bookish sort and thus we have the textbook and the teacher endowed with a supreme significance. We have but to add the technique of teaching molded in accordance with the laws of thought, and Herbartian formalism is easily understood. The interests actually utilized by the teacher are the interests which children possess in common, and the apperceptive systems which the teachers conceive as basic in moving from the known to the unknown are confined to what was learned in the "last lesson." In this system the more conscientious the teacher, the greater is the temptation to stifle the genuine activity of the child and to shape it in the image of adult ideals. The child becomes as putty in the hands of a workman. In the teacher's desire to

[1] From *Democracy and Education*, 1911, pp. 81–82. By permission of The Macmillan Company.

bring forth a worthy product, the child's individuality and initiative and spontaneity are lost sight of.

3. The School an Individualistic and a Selective Institution.—Some years ago, when the writer was a superintendent of schools in a small city, he visited an elementary school situated near the home of an outstanding truant problem. It occurred to him that it might be well to supplement the efforts of the truant officer and call upon the child's parents. Only the mother was at home; but she talked freely of her difficulty in securing regular attendance at school on the part of her boy. "I have talked to him and scolded him," she said; "but it don't seem to do no good. Why, only yesterday, Mister, when you went by I told him, 'Now see, if you would only go to school and study hard, you might grow up like Mr. Thayer and not have to work neither!'"

This incident illustrates a dominant American conception of the function of the school and particularly the conception which prevailed when the recitation system first developed. The school was conceived to be a great democratic opportunity. It was the practical expression of the faith that all men are created equal. It was an agency designed to enable those who willed to do so, to better their lot in life. Poor and rich alike might attend it, and thus acquire the information and training indispensable for individual advancement.

This is but to say that the American public school has been from the beginning a reflection of American individualism. This individualism has frequently been confused with English individualism of the *laissez faire* school. American individualism has never been a philosophy. It has been a way of life. It has never hesitated to utilize the government for the purpose of advancing

or controlling individual interests. Government grants opened up the west to individual settlement; and appropriations for internal improvements, such as rivers, harbors, and roads, have always been made upon the theory that the people's government should assist the people in getting a fair start in life. A history of legislation in both states and nation would unquestionably bear out the contention that this legislation merely reflects the spirit of hospitality with which pioneer settlements traditionally greeted the newcomer. The stranger was welcomed without a question regarding his antecedents, and the community turned out more or less as a body in order to assist him and his family to build his cabin and to plant his first crops. Once given this start, however, the newcomer was expected by virtue of his own qualities "to make good." In short, American individualism has involved from early days a peculiar combination of community assistance with private initiative. "Making good" has consisted largely in advancing one's own interests and winning the prizes which all esteemed, but the government (as town or state or nation) has felt under obligation to guarantee to all, as far as possible, an equal start in this race.

In return for the opportunity to advance one's status through school learning, the school demanded of the child what the community asked of the stranger once it had rendered the helping hand: the ability thereafter to go it alone. Going it alone in school meant making good with the subjects the school taught and the system of training it afforded. The child must fit himself to the school, not the school to the child. Compulsory education laws did not exist and it was inconceivable that teachers or school should strive to make a silk purse out of a sow's ear.

If a pupil would not or could not learn, he, and not the school, was believed to be at fault. It was expected that the dullard should cease to waste his own and his master's time.

This explains in part, at least, why the school did not assume greater responsibility for the habits of study and methods of learning which children as individuals developed. The lesson was assigned and it was the pupil's duty to learn it. If he wasted hours in a meaningless endeavor to work his problems, this was not necessarily reprehensible. It was perhaps a good rather than an evil because in this way it was thought he would develop habits of persistence and "stick-to-itiveness." Wasteful methods of study did not come under observation for correction or reform unless they failed utterly of results. The end-in-view was to secure the correct answer or assigned information. To "cash in" with these was sufficient evidence that all was well with the learner.

The early individualistic purpose of the school has had a further influence. It has delayed by indirection a reconstruction of the recitation method of teaching. The subjects taught in the school were selected for their utility or training values and not for their socializing effects. Until comparatively recently the home, or the church, or some other community agency, has assumed responsibility for socializing the child. Not until these agencies seemed to fail, has the school been asked to train directly for citizenship. In consequence, the child in school has looked out for himself and in general has been expected to play a lone hand. The relationship, moreover, of teacher and pupil has been an autocratic relationship and the entire ordering of the life of the child in school has had little bearing upon his later activities as a citizen in a democracy. Consequently, the outlets which the child has

found for his social needs have grown up as extra-curricular activities, at first ignored and later controlled by the school. Only grudgingly have pedagogues given their sanction to these activities and scarcely at all have teachers envisaged them as natural expressions of a child's nature which afford rich suggestions for methods of teaching. To the degree that extra-curricular activities have acquired a permanent status in the school, they have tended to divide school life into two compartments and to leave undisturbed, if not to confirm, old methods of teaching. Classroom work has remained primarily group work in which, however, an individual's interests remain individual. He answers when called upon and he is not expected to work with or to help another. And when the new citizenship materials of learning were finally introduced for their socializing values, we find them "presented" in the same old, individualistic, group recitation manner!

These three conceptions of education, education as the acquisition of knowledge from books, education as a process of writing impressions upon the mind, and education as an individualistic and selective process which operates primarily by elimination, were three of the most important principles which determined the character of teaching one hundred years ago. They justified a procedure which was characterized by assignments in daily installments, identical demands upon all pupils, identification of ground covered with genuine learning, and docility and passivity in reproducing for the teacher the information contained "in the book."

But do they harmonize with pedagogical theory of today? It is according to the way we answer this question that we must today judge the method of teaching to which they gave rise.

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PART II

SOME PRINCIPLES UNDERLYING EDUCATIONAL PROCEDURE OF TODAY

CHAPTER III

EDUCATION AS CHARACTER BUILDING

It requires no more than a superficial acquaintance with the educational situation of today to realize that the mastery of a textbook no longer constitutes the chief end of school education. The text is being transformed into a means for realizing more fundamental objectives; and emphasis in school has shifted from knowledge as book learning to information and activities as instruments in the formation of character traits.

This does not mean that we are altogether clear regarding what constitutes the ends of education or the most appropriate methods for realizing them. We have, for example, Professor Bobbitt insisting that "It is helpful to begin with the simple assumption, to be taken literally, that education is to prepare men and women for the activities of every kind which make up, or which ought to make up, well-rounded adult life; that it has no other purpose; that everything should be done with a view to this purpose and that nothing should be included which does not serve this purpose." [1] According to this procedure we should evidently draw up a detailed list of appropriate adult activities, ascertain what abilities requisite for their performance are

[1] *How to Make a Curriculum*, Houghton Mifflin Company, 1924, pp. 7–8.

inculcated properly by agencies other than the school, and then parcel out to each grade the responsibility for training children in abilities necessary for the performance of the remaining adult activities. Such authorities as Professors Bode and Dewey, on the other hand, insist that this takes the *status quo* for granted; that society is in a process of change and that the responsibility of the school is not only to conserve the past and train for the present order but to reorganize wisely the future. This, they insist, calls for intelligence and a capacity to adjust oneself to novel situations. Consequently, the most important consideration in education is to train in thinking and that type of thinking which enters appreciatively into the interests and concerns of other people. This calls not for narrow training in specific abilities but involves instead the development of attitudes and dispositions which are socially minded. These philosophers tell us further that the best way to prepare for a healthy and a competent adult life is to cultivate to the full the interests and abilities and potentialities of the child at each stage of his growth. As Dewey states: "If the environment, in school and out, supplies conditions which utilize adequately the present capacities of the immature, the future which grows out of the present is surely taken care of. The mistake is not in attaching importance to preparation for future need, but in making it the mainspring of present effort." [1]

It is not necessary at this point to pass judgment upon these two points of view. Whether the school prepares for the future by grafting adult powers upon child nature or by encouraging a worthy, purposeful living at each stage of child life, it is clear that there is agreement upon a new

[1] From *Democracy and Education*, 1916, p. 65. By permission of The Macmillan Company.

emphasis in education. Personality outcomes, character traits, intellectual, moral and physical abilities, skill, powers, attitudes, and dispositions are aimed at directly. These, not information alone, are the objectives of teaching, and books, laboratories, class work, school experience, out-of-school excursions, and "projects" are means to these ends. As Professor Bobbitt states in a context different from that in which he is quoted above: "Education is more and more to be accomplished through a carefully conditioned and carefully guided series of normal life-experiences. Some of these will be at school and some of them elsewhere. They will aim not at mere stores of inert information and unapplied academic skills of vanishing types but rather at abilities to do the things well which are involved in a proper type of human living. To live as one ought to live at each successive age-level is the one sure way of learning to live as one ought to live at the mature level of adulthood." [1]

Nearly every school illustrates in some measure this new tendency in education, but we find in some of our leading progressive public and private schools most striking evidence of revolutionary change. For example, there is on the writer's desk a small book bound in a paper cover entitled, *Routes to the East, Tales of Wonder and Adventure.* This is the product of the children's work in the upper grades of Public School, Forty-five, the Bronx, New York City. It is illustrated in color, and was written, printed, and bound by the older pupils in order that it might serve as

[1] "Difficulties to Be Met in Local Curriculum Making," *Elementary School Journal*, Vol. 25, p. 655, May, 1925.

We must leave to the reader the interesting task of reconciling the doctrine in the last sentence quoted with that presented in Chapter II of *How to Make a Curriculum;* and the reconciliation of the philosophy expressed in this book with that presented in his article "The Orientation of the Curriculum Maker," in Chapter III, Part II, of the *Twenty-Sixth Yearbook*, National Society for the Study of Education.

reading material in the lower grades. The *Foreword* states:

To the Boys and Girls of Our School

"For you we have written this little book. From our own library we read the books for information to write the stories. Not once but many times we had to write them. In the drawing room where you work we made the linoleum blocks for the pictures. Often they were not good and we had to try again. Some of you work in the print shop. There our boys printed this book. It was bound in the room where you bind books each day. By the spirit of helpfulness of many, we were able to produce this book for you. It tells you stories of long ago, about men who sought new routes to the East. Today that story goes on. It ends, or perhaps, begins anew with a northwest air route to the lands of the East. We hope that our book will show you that each new attempt brings the East and the West closer together. It may make you realize that we are all citizens of a great world community where we may live together in a spirit of friendliness."

It is clear that in gathering the information and material, and in writing the poems, narratives, imaginary diaries, and dramatizations which constitute the contents of this book, both the knowledge acquired and the skills employed took on added vitality because of the purposes toward which they were directed. And likewise we may be sure that the contents of the book will have an interest for the lower grade that might well be lacking in a book of more formal and standard character.

The festivals for which the Ethical Culture School of New York City is so widely known, likewise illustrate both the way in which schoolroom work may be directed toward immediate and worth-while ends and how the activities of various departments may be correlated in realizing these ends. In presenting the festivals, pupil initiative and responsibility are stimulated to the maximum. The pupils of one grade or department usually assume responsibility

for determining the general theme of the festival and the composition of the lines. The art students plan and, with the help of the boys in the shops, paint and construct the stage scenery, etc. The classes in household arts design and make the costumes and the music department furnishes the special music, general choruses, and the like. All details of management, organization, and execution are handled quite largely by student committees.

This concentration upon pupil activity as a means for educating boys and girls, in contrast with traditional informational methods, is further exemplified in recent methods of curriculum revision and the construction of courses of study. Committees working on curricula and courses of study are no longer satisfied merely to indicate ground to be covered, pages to be read, or contents of a subject upon which the teachers and pupils should dwell. For some years curriculum experts and teachers have been endeavoring first, to state the objectives which subject matter should endeavor to realize, and secondly, to translate these objectives into specific items of subject matter. Of late it is recognized that this still fails to go far enough, and courses of study are identifying subject matter and method in such a way as to concentrate upon those activities in which pupils must engage in order to realize the objectives set up. That is to say, the curriculum and specific courses of study are now conceived of as bodies of experiences in which pupils engage, a series of organized opportunities and experiences which constitute for the child a *way of life*, essential for his growth and development into worthy adulthood.

The general plan of a recent textbook in general science [1] will make this point more concrete. Instead of presenting

[1] Pieper and Beauchamp, *Every Day Problems in Science*, Scott, Foresman and Co., 1925.

the principles of science in a purely descriptive and explanatory manner which pupils are expected to learn and then apply, perhaps in the answering of a few questions or performing a few experiments which involve the application of knowledge acquired, the authors have organized the general field they intend pupils to study into some seventeen units, "each unit representing a major topic or problem of everyday social significance." These topics are organized with a view to giving the pupil an understanding of the essential aspects of his environment. Thus a few of the units are: The Earth on Which You Live, Weather and Climate, Providing a Good Food Supply, Machines for Doing Work, Protecting Ourselves from Disease, Using Steam and Exploding Gas for Power, Communicating with Our Neighbors.

In each unit the main purpose seems to be to proceed from a knowledge of concrete and immediate relationships to a more fundamental understanding of the practical and scientific implication in these relationships. This is not attempted, however, merely through the presentation of subject matter. At the beginning of each unit there is the "story" of the unit as a whole, an informal discussion constituting a bird's-eye view of the unit in question. In the case of the unit on "The Earth on Which You Live," this constitutes a descriptive account "of the great universe of which the earth is such a small part." Then follows specific problems such as:

How can you locate the stars?
What is the nature of the principal bodies in the solar system?
How did the earth come to be as it is today?
Why do the days and nights differ in length?
Why do the seasons change?

While in each case the knowledge or information essential for understanding and appreciating the problem is presented in the book, the text consists quite largely of exercises, experiments, and references designed to engage the pupil in the activity essential for arriving at an understanding of the topic and to stimulate further study on his own initiative. These exercises, moreover, involve more than the acquiring of information. They are aimed consciously at the training of pupils through the exercise and development of such oral and written expression, silent reading, interpretation of the printed page, interpreting maps, diagrams, tables and graphs, preparing outlines and summaries, reorganizing knowledge for new purposes, acquiring information in source material and studying home and shop appliances. Finally, each unit contains, in addition to the work expected of all pupils, supplementary reading and exercises designed to provide for the special and individual needs of pupils.

It is clear that in this new way of teaching, the center of gravity shifts from the mere reciting of assigned lessons to the ways of the learning process. A teacher will still ask himself: "What do I want my pupils to know about this topic? What information is of the most value to them?" But he inquires in addition: "What changes in the lives of my pupils do I want this topic to effect? What habits of study or methods of procedure should they acquire in mastering this material? What should I have my pupils do in order to realize these objectives? How can I assure myself that my teaching and their study is actually transforming their lives?"

The answer to the question, "How can I assure myself that my teaching and their study is actually transforming their lives?" involves the necessity of devising means for

determining whether or not the desired characteristics are being developed. This in turn is causing the educator to test the results of his labors in ways hitherto overlooked and to concern himself with factors in the child's development which he has hitherto ignored.

Let us consider first some new ways of ascertaining learning products. The old method, as we know, was confined largely to the answering of informational questions in oral and written form or to the solving of problems which were typical of work previously studied. These methods still persist, and as means for appraising informational and performance abilities of pupils they have a legitimate function to perform.

But they, as well as their modern refinements in the form of standardized pedagogical tests and "new type" examinations, are limited of necessity in their range. They reveal information, skill, and power within a restricted area only. They are at best ineffective instruments for revealing the way in which school work is integrating with a child's life. Consequently, progressive teachers are devising other methods for ascertaining the influence of school work. These methods endeavor to trace the effects of school experiences upon life outside of school, to appraise the accomplishments in regular assignments by what these enable or stimulate a pupil to accomplish more or less of his own free will.

Suppose, for example, that a teacher decides good taste in reading is an objective in teaching literature. Many have come to see that this ideal is not realized by a system of teaching which involves the slow, laborious translation of an English classic, nor is the pupil's acquisition of a taste for good reading ascertained alone from a series of questions based upon a text. It is seen that the cultiva-

tion of taste calls, in part, for the reading of many books adapted to the varying ages and interests of pupils and that a most valid test of the presence of taste is the free, unsupervised reading of the child which grows out of class work.[1]

What is true of reading holds true of other subjects. The shifting of attention from exclusively informational outcomes to habits and dispositions, attitudes and ideals is a recognition of the importance in education of traits other than those narrowly intellectual. A teacher who "assigns a lesson" today may have a variety of purposes in mind. He may wish the class to engage upon a joint project with a view to developing qualities of coöperation. He may present the subject for the specific purpose of training pupils to sense a problem, to define it, formulate a solution, and test this by reference to facts. He may intend that they should learn how to use a reference library, to take notes, or to organize a committee report. And still again, he may stimulate a heated discussion for the purpose of developing the ability to think while on one's own feet, to exercise self-control, and to sense the values of fair play, tolerance, and open-mindedness. These procedures may lead less expeditiously than older methods to the conclusions finally arrived at, but a teacher employing them would receive our approval just because we desire to measure effectiveness in teaching as much by the qualities of character fostered and developed, as by the results of purely informational tests.

The present status of extra-curricular activities is a

[1] For suggestions in guiding the supplementary projects of pupils, see McCoy, Martha Jane, "The Voluntary Project as a Measure of Appreciation in Third and Fourth-year English," *Studies in Secondary Education*, II, Supplementary Educational Monographs, No. 26, Department of Education, University of Chicago, pp. 70–90.

further illustration of this growing concern of the school for the wider implications of formal education. For a time the school ignored, if it did not actually frown upon these activities. Only grave abuses in the conduct of athletics or the manifest tendency of social and recreational interests to detract from approved school interests finally induced teachers and school officers to undertake their supervision. Gradually, however, teachers have come to see the possibilities in the way of utilizing the social interests of pupils for other purposes, and today extra-curricular activities extend to practically every phase of school work. From athletic associations and social clubs they have come to include organizations which relate most intimately with the various subjects of the curriculum and the guidance functions of the school. Take, for example, the following list of clubs sponsored by but one department, the English Department, in the Holmes School, a junior high school in Philadelphia.[1]

I. *Newspaper Clubs*

The Nautilus Club (*The Nautilus* is the school magazine)
Reporters Club
Scribblers Club
Poetry Club
Advertising Club
Junior Salesmen

II. *Guidance Clubs*

Success Club
Guidance Publicity Club

III. *Public Speaking and Dramatic Clubs*

Public Speaking Clubs
Debating Club

[1] From Thomas-Tindal and Myers, *Junior High School Life*, 1924, Ch. XV. By permission of The Macmillan Company.

Junior Dramatic Club
Senior Dramatic Club
Scenario Club

IV. *Cultural Clubs*

Story Hour Club
Shakespeare Club
Mythology Club
Library Club
Booklovers Club

The activities of one of these clubs will further illustrate the educational emphasis of their interests. The description of the activities of the Story Hour Club is as follows:

STORY HOUR CLUB

Aim: To lay the foundation of literary taste in children by acquainting them with stories of a high type, stories full of appeal to the child heart, yet cast in a form which has real literary merit.

To give training in effective delivery of a short story.

To introduce junior high school entrants to the club life of the school and cultivate a feeling of comradeship.

To inculcate the moral obligation incumbent upon each junior high school pupil to give his best service for the benefit of his group.

Activities: Telling by the club sponsor of such high-type stories as Wild's "Happy Prince," Mrs. Ewing's "Story of a Short Life," Ouida's "Dog of Flanders," Kipling's "The Butterfly That Stamped," etc. Student participation procured by devoting time at the end of the period to asking for individual opinions as to the part of the story that appealed most strongly.

Training in imaginative work through the unfinished story. The sponsor begins a story and carries it to the point where the incidents approach a climax. Pupils are then asked to supply appropriate ending as consistent in style and subject matter as may be.

Story telling through impersonations. Boys and girls tell their favorite stories in the first person, thus giving them the vividness of autobiography. Impersonations of Cinderella, Red Riding Hood, Dick Whittington, William Tell, etc., can be convincingly presented in this way.

An occasional period devoted to the telling of short humorous stories, jokes, and toasts. This type of activity has both an immediate and a deferred value. It promotes a feeling of comradeship among club members, and gives them a poise and readiness of speech that will stand them in good stead in the social relationships of later life.

Story-telling contests. The group is divided into sections and each section prepares a program for its individual story-telling day. The lesson is conducted by the class chairman who, with his group of selected story tellers, takes the platform. The stories are told, and the audience then judges the winner from the standpoints of interest and delivery. Later the winning contestants from each group compete. To this finale parents and affiliated clubs are all cordially invited.

Membership: Open to all seventh-year pupils.[1]

Professor George S. Counts has recently examined in a most searching manner the educational assumptions underlying teachers' attitudes toward extra-curricular activities and he has insisted that these activities be more critically evaluated.[2] What Professor Counts says is quite pertinent. The mushroom growth of extra-curricular organizations in recent years calls for a serious appraisal of their purposes in the light of well-grounded educational policies. There is grave danger at present that two relatively independent systems of education will be carried on in the same institution. One of these systems will be comparatively unorganized and lacking in continuity of development, depending more or less exclusively on incidental learning, but nevertheless quite in accord with the interests and characteristics of boys and girls. The other will be more consecutive and systematic, but relatively formal and unattractive, the "regular school work." This situation is productive of

[1] *Op. cit.*, p. 204.

[2] "Procedures in Evaluating Extra-Curricular Activities," *School Review*, XXXIV: 412–425 (June, 1926).

waste and is unfortunate in its educational outcomes. A more effective educational policy would identify and harmonize these two methods of approach.

How this will be done and, indeed, how many schools are already doing it we cannot discuss at this point. We have referred to extra-curricular activities merely to enforce our argument that education today is becoming more and more concerned with the transformation of the boy and girl in the direction of worthy ends.

Nor is this concern limited to the extra-curricular activities and to what, for want of a better term, we may call the academic interests of pupils. The tendency of the school to vitalize and develop these interests and to bridge the gulf separating school from the genuine concerns of life is leading educators to realize the importance of other factors in child growth which have hitherto escaped the observation of pedagogues. One or two examples will indicate this wider concern of the school.

In *The Problem Child in School*,[1] Mary B. Sayles records the case of a girl who was a problem, both from the standpoint of scholarship and behavior. "Her teacher in the lower sixth grade said that she was bright enough, but just wouldn't apply her mind; 'a nuisance in the schoolroom,' Miss Grey called her. 'She is capable of doing the work but does not try. She won't work unless someone is standing over her. She disturbs the whole room with her foolishness.'"

Instead of considering this merely a problem in which the child should receive discipline for the purpose of "taking the foolishness out of her" and making her concentrate upon her books, the visiting teacher decided first to in-

[1] Publication No. 4 of Joint Committee on Methods of Preventing Delinquency, 50 East 42d St., New York City.

vestigate the out-of-school life of the child. She discovered that she was an adopted girl and that her parents were being influenced by their friends who constantly reminded them that as the girl grew older she would manifest undesirable hereditary traits and would surely disgrace them. They had as a result "become suspicious in their attitude toward the child and had felt it their duty to be severe. They had attempted to control her largely by reminding her that she was not their own child and that they would not keep her unless she was good."

The visiting nurse succeeded in showing the parents that this placed a heavy responsibility upon the child and that perhaps the fear of being cast out by her parents was driving her to do the very things which would realize the consequences she dreaded. Subsequent events seemed to justify this inference for, with a changed attitude on the part of her parents, both her deportment and her scholastic record improved.

Miss Sayles reports another case in which a feeling of inferiority operated to hamper a boy's work in school. This boy's teacher pointed him out to the visiting teacher as one who was poor in scholarship and lacking in ability to comprehend the work of the grade. A visit at the home brought forth the information that Winthrop, the boy in question, was one of four children. The older brothers were working successfully in downtown offices and had never experienced difficulty in school. The sister was in high school with an excellent record and was "a good deal of a pet, both with her teachers and at home." The two brothers twitted him unmercifully regarding his monthly reports and one of them administered punishment to him frequently.

The fact that "the boy's developmental record revealed

no abnormality or marked retardation," together with the noticeable difference in the boy's status in the family as contrasted with that of the other children, led the visiting teacher to believe that the mother and the older children dominated the situation unduly. The mother was shown that, by constantly pointing out to the boy the contrast between his failure and the success of the other children, she was developing in him a sense of inferiority which would detract rather than add to his interest in school work. She was shown the necessity for encouraging him and convincing him that he possessed the ability to do well, in order to influence his total attitude toward himself and others. His teacher was instructed along the same line and she agreed to find opportunities for him to taste the joys of success.

The prescription worked and, writes Miss Sayles, "In a fortnight's time he had come to seem quite happy. He was working hard and his grades were improving. . . . Before spring Winthrop's teacher reported that he had become one of her best pupils."

The visiting teacher movement is an outgrowth of this determination on the part of the school to meet an enlarged responsibility. The realization of this responsibility, however, has resulted from a crossing of the paths of the social worker and the teacher. Juvenile court cases, when analyzed, have been found often to originate in rather specific learning difficulties in school which, because they were allowed to fester, have broken out as serious conduct disorders; and learning difficulties, on the other hand, when thoroughly diagnosed in school have led back to maladjustments in home and community. There is growing up, in consequence, a new technique in the handling of problem pupils called the "case method" which combines the func-

tions of the teacher and the social worker.[1] And, within the more narrow confines of teaching procedure, the growing appreciation of the significance of such common mechanisms of behavior as the inferiority complex, transference, compensation, etc., is resulting gradually in a new approach to problems of organization of subject matter and methods of teaching. The familiar shibboleth that we should teach the child and not the subject is thus taking on more definite and tangible meaning.

And so, gradually, the conception of schooling has come to mean not merely preparation for adult life but an integral part of child life itself. At first, as we have seen, it consisted in little more than formal instruction within a very limited field. The textbook dominated the situation and the master's duty was summed up in the injunction to see that pupils "larned" their lessons. Education has now broadened out to include a first-hand concern for a pupil's growth. It attempts to define very definitely the outcome of schooling in terms of objectives of growth and development, traits of character for which subject matter and school activities are means, not ends. As means, however, school experiences are supremely important and they are scrutinized carefully with reference to the ends they are designed to realize. This concern with ends, with development as against the acquisition of information, is leading to an increasing sensitiveness to other factors in the learning situation to such an extent that teachers appreciate as

[1] *Cf.* Reavis, W. C., *Pupil Adjustment in Junior and Senior High Schools*, D. C. Heath and Co., 1926; Sayles, Mary B., *The Problem Child in School*, Publications of the Joint Committee on Methods of Preventing Delinquency, Publication No. 4, N. Y., 1926; *Three Problem Children*, Joint Committee on Preventing Delinquency, Publication No. 4; Morrison, H. C., *The Practice of Teaching in the Secondary School*, University of Chicago Press, Chs. XXX, XXXI.

never before the significance of the subtle lines of influence between school and home and community.

This realization of the intimate connection of many factors in the learning situation and this conception of education through and for behavior as against education for information, rests upon a theory of learning which likewise contrasts with that which prevailed in our early schools. Today we no longer consider learning to be a process in which outer impressions are written upon a blank mind much as characters may be traced upon a wax tablet. Accordingly, in the chapters which immediately follow, we shall attempt to trace this transformation in our theories of learning and indicate some of the implications of these changes for teaching method.

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CHAPTER IV

LEARNING AS AN ACTIVE PROCESS. ITS PRE-BIOLOGICAL FORMULATION

As we have seen, the Lockian conception of the mind dominated educational thinking at the time the recitation system developed. According to Locke all knowledge begins with sense impressions and all the complexities of our mental life are traceable, ultimately, to those objects of sense without the organism which instigate mental activity. The direction which learning takes, therefore, and the character of a child's development depend primarily upon the environment.[1] This tends, of course, to leave little initiative with the child in determining his own education and sanctions the centering of control in the hands of his elders. It makes possible an armchair appraisal of educational materials, since educational values evidently reside in the subject matter, rather than in the outcome of a vital intercourse between the child and the subject of study. The function of the child in learning is thus a passive one. His duty is to absorb the subject matter which the proper authorities deem appropriate for strengthening his powers of observation, attention, retention, comparison, abstraction, reasoning, and the like, in ways that long experience seems to indicate to be most effective.

[1] As indicated in the previous chapter, Locke does grant to the mind certain faculties which work over sense impressions and combine them in diverse ways. There are other inconsistencies and contradictions in Locke's views which it is hardly pertinent to mention here. The passive conception of the mind represents largely the line of his educational influence.

This conception of education as a molding process from without was given added support by the Herbartians, despite Herbart's emphasis upon interest; since for Herbart, as well as for Locke, an individual's existence begins without preordained tendencies; and the nature of mind is explained entirely in terms of the ideas which one acquires in the course of his existence. Locke denied the existence of innate ideas and Herbart the conception of innate faculties or instincts. For both, consequently, the central influence in the learning process resides without the child.

Beginning roughly with Rousseau, however, a different conception of child nature developed which evolved new criteria for educative materials and methods. This placed the point of departure in learning squarely within the child and made his nature and his needs the basic considerations in the educative process.

This revolution in educational point of view is proclaimed in the opening words of Rousseau's *Émile:*

> "God makes all things good; man meddles with them and they become evil."

Contrary to the traditional theological conception of human nature, Rousseau believed that human nature is originally good and as a result its natural impulses and desires are to be followed and cultivated rather than to be repressed or exterminated. The evils of civilization and the corruptions in human society, as he saw them, are alike man-made; and he believed that if we could but isolate children during the formative period and keep them free from contact with conventions and customs we could develop a race of men which might reconstruct and regenerate human society.

The sources of education, according to Rousseau, are threefold: nature, men, and things.

"Thus we are taught by three masters. If their teaching conflicts, the scholar is ill-educated and will never be at peace with himself; if their teaching agrees, he goes straight to his goal, he lives at peace with himself, he is well educated." . . . "What is this goal? as we have shown, it is the goal of nature. Since all three modes of education must work together, the two that we can control must follow the lead of that which is beyond our control." [1]

This principle of adapting educational procedure to child nature accounts for the program which Rousseau outlined for the education of Émile. Since the child's first impulses and desires are of a sensuous character and relate primarily to his physical well-being his early training concentrates upon the physical. So with the mind. It concerns itself first with sensible objects and their relations; intellectual and moral education is postponed until the appropriate faculties develop.

"Since everything that comes into the human mind enters through the gates of sense, man's first reason is a reason of sense-experience. It is this that serves as a foundation for the reason of the intelligence; our first teachers in natural philosophy are our feet, hands, and eyes. To substitute books for them does not teach us to reason, it teaches us to use the reason of others rather than our own; it teaches us to believe much and know little." [2]

Until the age of twelve, therefore, Rousseau would have Émile's education confined primarily to that of physical activity and the manifold active relations with his sensible environment. Not until the period of from twelve to fifteen is there to be any emphasis upon intellectual education. In this period, "the child's strength increases far more rapidly than his needs."

[1] By permission from *Émile*, by J. J. Rousseau, Book I, p. 6 [Everyman's Library Edition]. Published by E. P. Dutton and Co.

[2] *Ibid.*, Bk. II, p. 90.

"He has, therefore, a surplus of strength and capacity which he will never have again. What use shall be made of it? He will strive to use it in tasks which will help at need. He will, so to speak, cast his present surplus into the storehouse of the future; the vigorous child will make provision for the feeble man; but he will not store his goods where thieves may break in, nor in barns which are not his own. To store them aright, they must be in the hands and the head, they must be stored within himself. And note that this is no arbitrary choice of mine, it is the way of nature herself." [1]

Not until the period of from fifteen to twenty does nature make provision for moral and emotional training. By this time, however, the senses and the brain have been trained and it is now appropriate and necessary to temper the heart. The grounds for this new need are thus stated:

"Man's proper study is that of his relation to his environment. So long as he only knows that environment through his physical nature, he should study himself in relation to things; this is the business of his childhood; when he begins to be aware of his moral nature, he should study himself in relation to his fellow-men; this is the business of his whole life, and we have now reached the time when that study should begin." [2]

This very sketchy statement of Rousseau's conception of education is intended for no other purpose than to contrast the implications which follow from it with the educational procedure that flows out of the doctrines of Locke and Herbart. Rousseau's insight into child nature and its needs was undoubtedly limited, but we must distinguish between the specific applications which he made of his own doctrines and the influence of these doctrines upon the history of educational method.

The basic principle in his system is that nature is right and that nature indicates the course which parents and

[1] *Ibid.*, Bk. III, p. 129.
[2] *Ibid.*, Bk. IV, p. 175.

teachers are to follow. Two subsidiary doctrines which follow naturally from this doctrine and which have had a molding influence in education are: (1) that the child's spontaneous and natural activities are essential ingredients in his education and (2) that the child in the course of his growth passes through distinct stages of development, each calling for procedures appropriate to its characteristics, and each essential for the succeeding stage.

These principles have influenced all educational theory and practice since Rousseau. The emphasis upon the child's natural impulses to activity has led to the increasing importance of motor activity in learning, and lies at the basis of the activity curriculum of today; while the conception that the child's development involves his passing through unique stages of growth, each with laws peculiar to itself, was a vital influence in Pestalozzi and Froebel, became affiliated with the culture epoch theory of the Herbartians, secured a new substantiation and application with the development of modern biology and psychology, and still operates with modifications in present-day theory and practice. It requires that education concern itself with more than the direct inculcation of adult skills, powers, and knowledge. It replaces the eighteenth-century conception of the child as an adult in miniature with the conception of child nature as something unique, a law unto itself just as different from the adult in its nature and its needs as the caterpillar differs from the butterfly.

It should be worth our while, therefore, to trace briefly the influence of Rousseau's doctrine of human nature in subsequent educators and to determine, if possible, the answer which present-day investigation in biology and psychology affords to the questions propounded above.

If children are unique, and, as Rousseau states, everything

should be brought into harmony with their natural tendencies, it follows that the subject matter of education must be selected primarily with reference to the characteristics of child nature. In this demand Pestalozzi and Froebel, as well as modern psychologists, agree, although in each case the theoretical basis for their beliefs differs.

Pestalozzi, for example, pictured the child's nature after the analogy of the seed of a tree.

"Sound education stands before me symbolized by a tree planted near fertilizing waters. A little seed, which contains the design of the tree, its form, and its properties, is placed in the soil. The whole tree is an uninterrupted chain of organic parts, the plan of which existed in its seed and root. Man is similar to the tree. In the newborn child are hidden these faculties which are to unfold during life. The individual and separate organs of his being form themselves gradually into unison, and build up humanity in the image of God. The education of men is a purely moral result. It is not the educator who puts new powers and faculties into man, and imparts to him breath and life. He only takes care that no untoward influence shall disturb nature's march of development. The moral, intellectual, and practical powers of man must be nurtured within himself and not from artificial substitutes. Thus, faith must be cultivated by our own act of believing, not by reasoning about faith; love, by our own act of loving, not by fine words about love; thought, by our own act of thinking, not by merely appropriating the thoughts of other men; and knowledge, by our own investigation, not by endless talk about the results of art and science." [1]

In practice, as we have seen, Pestalozzi's theory of education was translated into object teaching, an effort to educate the child through the senses, on the supposition that the senses develop prior to other faculties. While this led both to the enrichment of the curriculum with new materials of science, geography, arithmetic, oral language, etc., and

[1] Quoted from Monroe, Paul, *A Text Book in the History of Education*, 1905, pp. 611–612. By permission of The Macmillan Company.

to an emphasis upon child activity in learning, the results soon became barren and formal. As Hailmann points out in a translator's note to Froebel's *Education of Man*, self-activity for Pestalozzi "has reference more to acquisitive or learning processes that fill the memory with little that bears directly on mental expansion; it is much concerned with long lists of names, verbal facts and formulas, recitation, and with imitation, even in reading, writing, singing and drawing." [1]

In Froebel the results of the movement begun by Rousseau are more fruitful, although he bases his theories upon a mystical philosophy at once difficult to understand and to substantiate. Froebel, as Pestalozzi, believes that each child contains within itself the germs of its future possibilities and that it is the purpose of education to supply the appropriate means for their development. Froebel conceives these germs of development to be offshoots of the divine nature which unfolds according to the laws of self-activity, but which at the same time are dependent upon the quickening influence of outer conditions for their development. Indeed, education, when truly conceived, is no more than the identification of the inner and the outer, in which the initiative must rest with the inner. As Monroe states:

"The dominant philosophy of the times, especially as Froebel accepted it, held that there is a fundamental unity in all things, a permanent principle in all changes and forms of life. There is a single formative energy which reveals itself in nature, that is in external life, as force, and in consciousness of the inner life, as mind. This energy, as intelligence in the individual, builds up for itself its own world. The self-the-mind is not so much *possessed* of activity as it *is* activity. Through this activity it realizes itself, and works

[1] Hailmann Translation, D. Appleton and Co., 1897, p. 11.

out its own destiny. This is true both in the intellectual and moral application." [1]

When given an adequate outlet for its divine energy and appropriate materials with which to concern itself, the child's inner possibilities develop healthily. When thwarted in their opportunities for exercise, stunted growth and perversion follow. These inner possibilities or tendencies are, in the order of their appearance, the unorganized activities of the senses in babyhood, play activities in childhood, and the more serious activities of boyhood. Motor activity is thus a basic condition of intellectual growth and social participation a requisite for normal development. Froebel believed that in working with physical objects and in participating in the work of the family, as well as vicariously sharing in racial experiences through story and song, the spiritual truths which objects and activities and stories symbolize will emerge in the consciousness of the child.

It thus appears that for Froebel educative material has both a practical and a spiritual aspect. On the practical side it consists in engaging coöperatively in the activities of one's social environment. In childhood this consists quite largely of play in which phases of domestic life are imitated. In boyhood the boy "shares the work of the house-lifting, pulling, carrying, digging, splitting. The boy wants to try his strength in everything, so that his body may grow strong, that his strength may increase, and that he may know its measure." [2] But on the spiritual side these same activities have a more fundamental significance. "It is not alone the desire to try and use his

[1] Monroe, Paul, *A Text Book in the History of Education*, 1905, p. 654. By permission of The Macmillan Company.

[2] *Education of Man*, Hailmann Translation, D. Appleton and Co., 1897, p. 101.

power that prompts the boy at this age to seek adventure high and low, far and wide; it is particularly the peculiarity and need of his unfolding innermost life, the desire to control the diversity of things, to see individual things in their connection with a whole, especially to bring near that which is remote, to comprehend (the outer world) in its extent, its diversity, its integrity; it is the desire to extend his scope step by step." [1]

Froebelian educative materials and activities thus serve a divine function. Froebel states this conception early in his *Education of Man* as follows: "All things have come from the Divine Unity, in God alone. God is the sole source of all things. In all things there lives and reigns the Divine Unity of God. All things live and have their being in and through the Divine Unity, and through God. All things are only through the divine effluence that lives in them. The divine effluence that lives in each thing is the essence of each thing." . . . "*Education consists in leading man, as a thinking, intelligent being, growing into self-consciousness, to a pure and unsullied, conscious, and free representation of the inner law of Divine Unity, and in teaching him ways and means thereto.*" [2] And again, "Now, the representation of the infinite in the finite, of the eternal in the temporal, of the celestial in the terrestrial, of the divine in and through man, in the life of man by the nursing of his originally divine nature, confronts us unmistakably on every side as the only object, the only aim of all education, in all instruction and training." [3]

This conception of the purpose of education has certain difficulties in its practical applications. These difficulties

[1] *Ibid.*, pp. 102–103.
[2] *Ibid.*, p. 2.
[3] *Ibid.*, p. 16.

proceed from the fact that Froebel has two criteria for selecting educative materials and experiences, which, while theoretically supposed to yield identical results, actually do not do so. These two criteria are: the needs of the child as concretely observed, and the purposes of the Infinite Nature wrapped up in the child, as metaphysically interpreted. What best serves the interests of the child should function also to liberate the Infinite Nature within him, and what can be demonstrated to symbolize the divine in the child is *ipso facto* appropriate material for his education. We can thus determine significant educational experiences either from actual observation of child life or from our metaphysics.

There is a strong probability that the latter method will prove to be the easier, since in the realm of pure thought and mystical experience one confronts no stubborn limitations and obstacles such as harass him in the rough-and-tumble affairs of life. Nor was Froebel averse to following the easier path; and, accordingly, we find him selecting his kindergarten "gifts" and "occupations" as much with reference to their symbolical or metaphysical value as by virtue of an accurately determined appropriateness to child life.

While in the mind of the same individual there may be no inconsistency between educative materials selected from actual observation of children and those logically approved of by means of a mystical insight into the purposes of the Infinite, it is not true that different interpreters of the Infinite's manifestations arrive at identical conclusions. Mysticism as a method of curriculum building and as a means for constructing helpful teaching procedures suffers from the same difficulty as mysticism in other regions of life; it is satisfactory and reassuring only to the individual

translator of the deliverances of the ultimate reality. Consequently, it is not strange that an effort was made to discover criteria for education which might be free from philosophical presuppositions lacking general confirmation. Philosophy having failed to produce a valid theory and method of education, educators decided to resort to science.

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CHAPTER V

LEARNING AS AN ACTIVE PROCESS. ITS BIOLOGICAL FORMULATION BY G. STANLEY HALL

When the king of England dies his successor automatically acquires office and the people recognize the fact of unbroken succession by exclaiming: "The king is dead. Long live the king!"

It is not alone in the political life of England that this holds true. Only a few years ago G. Stanley Hall towered above all others in the field of American education. His encyclopedic knowledge, his fertility of generalization, his marvelous ability to gather, organize, and interpret data, and his original and stimulating qualities as a teacher led him to exert an undisputed preëminence in educational thinking. Curricular materials in elementary and secondary education, methods of teaching and of discipline, as well as the organization of school systems, still bear the impress of his influence. The period of Hall's dominance was less than a generation ago. And yet the young men and women who are today entering the teaching profession scarcely know the name of G. Stanley Hall. The king is dead. Long live the king!

The significance of Hall's work, as the work of others associated with him in the child study movement, resides in his attempt to determine scientifically the characteristics of children and to use his findings as a foundation for formulating educational procedure. He and his coworkers set about investigating the contents of children's minds,

and studying the actual activities of children. Their methods as viewed by those following them (who now profit alike from their successes and their blunders) may seem crude and oftentimes worthless. Nevertheless the trend of their methods has been stimulating and fruitful for further research.

Not only did they devise their own methods of procedure; they utilized as well the scientific conclusions from other fields. Thus, biology contributed the recapitulation theory and comparative psychology the theory of instincts (derived in turn, however, from evolution). As we look back upon the early phases of the child study movement we can now see that these two doctrines became quite unconsciously the lenses through which the child study movement read its facts.

Take, for example, the recapitulation theory. In the hands of Ziller and Spencer and G. Stanley Hall this gave new substance and form both to the culture epoch theory of the Herbartians and the developmental theory of Froebel. The culture epoch theory related at first merely to the teaching of historical and literary materials, primarily because of their value for moral instruction. As expanded by Ziller in Germany and G. Stanley Hall in America, this view came to mean that the individual in the course of his development passes through the cultural stages of racial experience, just as in his embryological development he recapitulates the phylogenetic development of the species. The recapitulation theory, thus conceived, gave also a more definite and tangible meaning to the mystical Froebelian conception of education, as a process in which the individual expands, in the course of his growth, the germ of the infinite within him.

The recapitulation theory transforms the educator into

an investigator. He must observe children's interests and instincts, and he must search the pages of history in order to secure the data with which to interpret the present action of children. Thus only can he identify the stages of a child's growth and organize the proper educative materials which will foster healthy development.

In 1901 Hall delivered an address before the National Council of Education on the topic "The Ideal School as Based on Child Study," [1] which states in short compass the applications of his conception of the nature of the child to the curriculum and the organization of the school. Thus he had discovered that during the years of eight or nine to puberty "there is a decreased rate of growth, so that the body relatively rests; but there is a striking increase of vitality, activity, and power to resist disease." This stage, he believes, corresponds to the period of human development well above the simian and before the historic period, "when our early forebears were well adjusted to their environment." It does not suggest, therefore, an emphasis upon reasoning, creative thinking, appeals to judgment or originality; but it is admirably adapted to "drill, habituation, and mechanism." Accordingly, the teacher will seek to establish the fundamentals of an education in reading, writing, arithmetic, etc. "Accuracy, which, when out of its season, is fraught with so many dangers for mind and body, is now in order." Arithmetic should be mechanized, "with plenty of mental exercises, and later with rules and processes for written work, with only little attempt at explanation." He complains that the geographies have not respected the unity of the child's mind and in their presentation of facts they have not considered

[1] *Cf.* Proceedings and Addresses, National Education Association, 1901, pp. 474–488.

connections with each other or the "nascent stages of growth." The subject should be organized on the basis of the fact that a child's interest in primitive life and animals culminates in the ages of from nine to ten, and interest in trade and government does not appear until from sixteen to twenty. Singing is very important in the age we are considering, "but far more time will be given to rote singing than to singing from notes, especially at first. The chief aim will be not to develop the power to read music but to educate the sentiments, and especially to attune them to love of home, nature, fatherland, and religion—the four chief themes of song in all ages, past and present." The hand must also receive training in these years since it is "in a sense never so near the brain as now" and "muscular development never so conditions mental." However, he is opposed to the Swedish system and other curricula which place emphasis upon finished objects. Instead he favors a curriculum of toys at first "and of crude scientific apparatus later, where everything will focus more upon the ulterior use of the object" than upon the process of making it. This age is likewise most favorable for beginning the study of foreign languages, although these will be taught by ear and mouth. "The child has a natural desire to express himself in many other vocal forms than the vernacular, for it is the age when all kinds of gibberish, dog Latin, and inventive words culminate. It represents the stage when human speech evolved fastest." These natural urges toward oral expression furnish also the cue for the teacher's dominant method of instruction. It will be by the "short-circuit from ear to mouth, which existed for unknown eons before reading and writing, and not chiefly on the long circuit and, biologically, very recent brain-path from eye to hand." Not much writing, accordingly, should be required of the

child but he should hear and talk for hours each day. The story is of great importance and the ability to tell stories a prime requisite in the teacher. "The ideal story-teller will prefer twilight or evening, with at least the dim light that gives the imagination a chance over sense, perhaps with flickering flames to objectify his themes. He will then weave the almost hypnotic charm of 'Once upon a Time.'" The stories selected will correspond with the age which the child is recapitulating: "the tales of Ulysses, Orestes, Siegfried, Thor, King Arthur and his Knights, the wanderings of Æneas and Telemachus, perhaps some tales from one or other of the great ethnic Bibles, some of the soul-transforming myths of Plato—such as Atlantis, the cave, two steeds—Hercules at the cross-roads, perhaps some legends from Ancient India, Reynard the Fox, something from Grimm and Simrock."

Such, in meager outlines, are Hall's suggestions for a curriculum for children during the period which extends between the ages of eight and nine and the onset of puberty. With the dawn of adolescence a rich curriculum and varied educative experiences become essential. In this stage, "To drill merely is to arrest." "Facts, ideas, laws, and principles should be in the very atmosphere, for they are now the ingenious youth's native breath, his vital air."

As an example of the way in which Hall would arrive at a curriculum for high school students from his study of the characteristics of adolescence, we may take the following statement regarding the instincts of youth and their implications for education:

"Youth loves combat, and this may be developed into debate; it loves distinction and to exert influence, and this suggests oratory; it loves to assume rôles and to widen sympathy by representing at this circumnutating stage, with its keen sense of character, manifold

types of human life; and has a passion for the theatre, and this suggests the drama, which always has this supreme moral quality that the good is victorious. Its very best safeguard and its highest ideal is honor, and this has its best expression in what may be called the ethnic Bible of the Saxon race in its adolescent stage, the literature of chivalry. Its religious instincts are at their very best, and to this our Scriptures make the noblest appeal." [1]

When we examine the methods of teaching and discipline advocated by Hall we find the same adherence to a policy of following nature. This desire to take his cue from nature leads him to advocate at one time the application of most rigorous disciplinary measures and at another time a *laissez faire* policy. Thus, when speaking of the methods to be employed during the period already discussed (that of eight or nine to puberty), he says: "In most cases to try to explain brings self-consciousness and conceit. This method is the resource of teachers and parents whose personality is deficient in authoritativeness. Obedience should still be a law, if not a passion." And again, "'Show,' 'demonstrate,' and 'envisage,' should be our watchword, not 'explain.' . . . Even with respect to morals and conduct the chief duty of the child at this age is to obey."

On the other hand, when we come to expressions of child nature in other fields, both of behavior and of instruction, nature seems to dictate a policy of non-interference. This policy of non-interference finds expression in the catharsis theory, according to which certain undesirable original tendencies must be given expression either because they are necessary preliminaries to, or correlates of, other quite different impulses; or, because their free expression in early life safeguards the individual from their appearance in later life.

[1] *Adolescence.* D. Appleton and Co., 1905, Vol. II, pp. 432–433.

This doctrine leads Kline and France to say of the property instinct:

"Do we believe that the child recapitulates the history of the race? If so we may not be surprised to find the passion for property-getting a natural one, not that the child lies, cheats and steals to acquire it or that selfishness rules the child's actions. Selfishness is the cornerstone of the struggle for existence, deception is at its very foundation, while the acquiring of property has been the most dominant factor in the history of men and nations. These passions of the child are but the pent up forces of the greed of thousands of years. They must find expression and exercise, if not in childhood, later. Who knows but what our misers are not those children grown up whom fond mothers and fathers forced into giving away their playthings, into the doing of unselfish acts, in acting out a generosity which was neither felt nor understood. Not to let these activities have their play in childhood is to run a great risk. It does no good to make the child perform moral acts when it does not appreciate what right and wrong mean, and to punish a child for not performing acts which his very nature compels him to do, is doing that child positive injury.

"During the period of adolescence, generosity and altruism spring up naturally. Then why try to force the budding plant into blossom? Instruct them by all means, teach them the right; but if this fails, do not punish, but let the child be selfish, let him lie and cheat, until these forces spend themselves. Do not these experiences of the child give to man in later life a moral virility?" [1]

And Pringle writes comfortingly regarding the pre-adolescence period:

"For generations immemorial, teachers, mothers, and maiden aunts, as well as men (who ought to understand) have been wont to ask why boys need to act so, why they are so rude, so noisy, so blustering, so cruel, so disagreeable generally. These questions and their like can be answered in three words if technical terms are allowed. 'Ontogenesis recapitulates phylogenesis.' . . . This is sometimes known as the 'recapitulation' theory; and sometimes it is referred to as

[1] Hall, G. Stanley, *Aspects of Child Life and Education*, Ginn and Co., 1907, pp. 266–267.

the 'culture epochs' theory. No one doubts that mankind has had a long and strange struggle in its progress from savagery up to civilization; but it is only in recent years that we have come to recognize the same struggle going on in the individual. The racial prototypes of the different periods of the individual are classified as prehistoric, patriarchal, tribal, feudal with absolute monarchy, revolutionary with constitutional monarchy, and republic or self-governing. The parallels to these periods have been pretty carefully identified in the individual and are respectively, infancy, childhood, preadolescence (boyhood), early adolescence, middle adolescence, and late adolescence. Thus we have a single answer to the questions concerning boyhood, which have so long troubled fond parents and teachers; the boy has inherited the instincts, the feelings, and the experiences of primitive man and is rapidly repeating in his way the stages of progress through which his uncultured and barbaric ancestors have passed. Why should he not revel in the comradeship and rough-house activities of the gang, whose racial prototype was the council of the braves? Why should we not expect him to fight and settle some of his grievances as did his barbaric ancestors? If this is natural and hence necessary to the nature and development of the preadolescent, are we going to lose our patience or become discouraged with the boy who shows these traits, which from our viewpoint are sometimes so disturbing? Professor G. W. Fiske considers the matter otherwise; he says, 'My reverence for the boy is due not only to the wonderful possibilities rolled up in him by the divine involution, but also to the marvelous heredity which he rediscovers to us through his rehearsal of the divine evolution.'" [1]

It must be granted that these views entailed some confusion and uncertainty for practical school teachers in methods of discipline. They found that it might be relatively easy to distinguish the various historical stages of racial development (provided one did not take too many races into consideration), but it was not so easy to identify in a concrete individual child the precise stage of his development. And yet this would seem to be of supreme im-

[1] *Adolescence and High School Problems*, D. C. Heath and Co., 1922, pp. 16–17.

portance, since the appropriate reactions of elders should have some correspondence to the characteristics of the stage of growth a child might be expressing. Moreover, in case a group of boys broke out in disorder and smashed up the furniture of a schoolroom, it should have afforded a conscientious teacher some degree of comfort to know that this was merely a revolutionary outbreak to be followed of its own accord by a period of law and order and not a tribal raid inaugurating a long series of subsequent outbreaks and maladjustments under an absolute monarchy!

The recapitulation theory naturally allied itself with a serial and a saltatory conception of child growth. According to these views, traits of mind and character arise more or less suddenly and follow each other in a definite order, thus rendering the periods of life such as babyhood, childhood, and adolescence strikingly different. For example, Hall says of adolescence:

"Adolescence is a new birth, for the higher and more completely human traits are now born. The qualities of body and soul that now emerge are far newer. The child comes from and harks back to a remoter past; the adolescent is neo-atavistic, and in him the later acquisitions of the race slowly become prepotent. Development is less gradual and more saltatory, suggestive of some ancient period of storm and stress when old moorings were broken and a higher level attained. The annual rate of growth in height, weight, and strength is increased and often doubled, and even more. Important functions previously non-existent arise. Growth of parts and organs loses its former proportions, some permanently and some for a season. Some of these are still growing in old age and others are soon arrested and atrophy. The old moduli of dimensions become obsolete and old harmonies are broken. The range of individual differences and average errors in all physical measurements and all psychic tests increases. Some linger long in the childish stage and advance late or slowly, while others push on with a sudden outburst of impulsion to early maturity." [1]

[1] *Adolescence, op. cit.*, Vol. I, p. xiii.

This view that each stage of growth is peculiar and rather sharply set off from other stages justifies, in the minds of its advocates, correspondingly different forms of school organization and methods of teaching at each stage of education. Thus it would approve of self-government and student participation in the upper grades of the elementary school and the high school, but it would oppose the introduction of pupil participation in the conduct of the school or classwork prior to this period. That is to say, preconceptions of the nature of children required teachers to adopt methods of discipline and teaching which of necessity deprived children of the opportunity to acquire qualities of responsibility and self-direction.

About twenty-five years ago biology began to repudiate the doctrine of recapitulation in the form accepted by its child study advocates. Further research into the development of the embryo contradicted the early conclusions regarding recapitulation. It was found that while it is true that the individual roughly repeats in the course of his development the phylogenetic series, there are large omissions in this series. Moreover, studies in heredity threw doubt upon the theory of the inheritance of acquired characters which underlies the conception that the individual inherits, and thus can live over again, the cultural experiences of his ancestors.

Consequently, there was again required not only a reexamination of educational theory but a new appraisal of educational practices and curriculum materials based upon this theory. Take for example the theory of instincts and its educational implications. The above quotations from Kline and France and from Pringle indicate how intimately the psychological conception of instinct is related to the biological theory of recapitulation. The instincts are

viewed as the psychological correlates of physical growth. Consequently, when the body undergoes the physical changes peculiar to adolescence, the instincts are thought to express the mental, social, and moral characteristics of that stage of racial development which corresponds to adolescence. Instincts are conceived of as inner forces, tendencies to act and think and feel which dominate for a time the life of the individual. As such they are the raw materials with which the educator must work. They constitute his opportunities and they define the limits of his possible achievements. The laws of their nature, the dates of their appearance, their waxing and their waning are the guide lines of his procedure. Learning is an active process running along the lines of nature's inner urges.

But if we discard the recapitulation theory all is changed. New criteria for selecting curriculum materials must be found and new principles devised for regulating the conduct of children. In short, a new orientation in educational theory is called for and original nature must be scrutinized again in order to discover the laws of its operation and the resulting acceptable educational practices.

In this period of reorientation we find Edward L. Thorndike functioning as a pioneer. Indeed it represents preeminently the period of his greatest influence in educational psychology. Accordingly, in our next chapter, we shall turn to a consideration of Thorndike's contributions to educational procedure.

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CHAPTER VI

LEARNING AS AN ACTIVE PROCESS AND EDWARD L. THORNDIKE

Thorndike's contributions to the science of education have been monumental.[1] While in recent years he has stood out quite distinctly as the father of educational measurement, it was necessary for him to begin his labors in psychology as a pioneer and to clear out of the educational field large quantities of brush and useless timber in the form of easy generalization and superstition. He blasted away many of the absurdities in the recapitulation theory and its corollary the doctrine of catharsis. He smote mightily against the concept of general faculties of the mind and the applications of faculty psychology in such doctrines as formal discipline. And, finally, he insisted that since instincts or original tendencies constitute the starting points of education, they must be carefully studied and observed. As a result he endeavored to substitute an inventory of specific situations and specific responses connected with these situations for what had previously been vague and general descriptions of essentially occult forces.

The central facts in educational psychology are, for Thorndike, what he calls S→R bonds. Inherited tendencies such as reflexes and instincts and learned acts such as those of skill or complicated acts of thought are all explained and reducible to situations (S) and responses (R) and the connections which unite these situations and responses.

[1] For an appreciation of Thorndike's contribution to psychology and education, *cf. Teachers College Record*, February, 1926, which was issued in his honor.

The real concerns of the educator are thus S→R bonds. The original responses of the human being, commonly called instincts, must be carefully noted and the situations provoking them patiently catalogued. The importance of these original S→R bonds as starting points in learning Thorndike indicates in the following statement:

"The original connections may develop at various dates and may exist for only limited times; their waxing and waning may be sudden or gradual. They are the starting point for all education or other human control. The aim of education is to perpetuate some of them, to eliminate some, and to modify or redirect others. They are perpetuated by providing the stimuli adequate to arouse them and give them exercise, and by associating satisfaction with their action. They are eliminated by withholding these stimuli so that they abort through disuse, or by associating discomfort with their action. They are redirected by substituting, in the situation-connection-response series, another response instead of the undesirable original one; or by attaching the response to another situation in connection with which it works less or no harm, or even positive good." [1]

The original situations may also be classified as stimuli to action. They are, consequently, the original satisfiers and annoyers. As such, however, they are composed both of situations within and without the body. A catalogue of these would contain the ultimate sources of all values.

"The original basis of the wants which so truly do and should rule the world is the original satisfyingness of some states of affairs and annoyingness of others. Out of such original satisfiers and annoyers grow all desires and aversions; and in such are found the first guides of learning." [2]

When the character of man's original make-up is known in terms of S→R bonds, the further problem of education,

[1] *Educational Psychology* (*Briefer Course*), Teachers College, Columbia University, New York, 1917, p. 3.
[2] *Ibid.*, p. 50.

according to Thorndike, becomes that of manipulating these according to the laws of learning.[1] And the laws of learning are, in turn, no more than a more specific statement of the conditions under which bonds are perpetuated, eliminated, modified, or redirected in accordance with the Principle of Readiness and the Law of Exercise and the Law of Effect.

An illustration of an instinctive tendency and one or two instances of learning may illustrate better how everything is reduced to S→R bonds.

In discussing the instinct of fear, Thorndike makes the point that we cannot talk of a general instinct of fear without defining precisely its character. "Practically," he states, "it makes a great difference whether a man responds only with discomfort, palpitations, and the inner subjective fear, still shooting at the enemy, or also runs and hides. Theoretically, it makes a great difference whether the situations involved are regarded as producing indiscriminately a vague X, fear, which then may at random produce any assortment of its various 'expressions,' or are regarded as each producing, under the same conditions, an effect proper to it and to nothing but it." [2] Accordingly, we must describe the instinct of fear in terms of the situations which provoke the response "fear"; and there are as many "fears" as there are discrete responses and allied situations. "Fearful sounds rarely provoke turning the head away and covering the eyes, but fearful sights often do."

[1] For both animals and men these are the Law of Multiple Response to the same External Situation, Law of Set or Attitudes, Law of Analogy, Law of Associative Shifting. *Cf.* Chapters X and XI, *Educational Psychology* (Briefer Course), published by Teachers College, Columbia University, New York City, 1917.

[2] *Ibid.*, p. 21.

While Thorndike does not proceed to define very carefully the situations and the connected responses which constitute the different fear instincts with which man is endowed, he does attempt to describe other instincts in the precise manner already insisted upon. Thus he writes of one of the native fighting manifestations:

"To the situation, 'an animal of the same species toward whom one has not taken the attitude of submission and who does not take it toward him' the male responds by threatening movements, shoving the person away, and, if these fail to produce the attitude of submission, by either submission or further attack. The encounter is closed by the submission of either party, which may take place at any point. This tendency may be called the instinct of combat in rivalry." [1]

While a skeptical reader may question whether these situations and responses are definite in anything more than name, it is nevertheless clear that Thorndike attempts to reduce the description of an instinctive tendency to a specific inventory of situation elements connected with specific responses.

A similar insistence upon definite situation-response relationships characterizes his descriptions of the learning process. We shall attempt to illustrate this first with a simple case of learning and secondly with the acquisition of a concept.

The simplest case of animal learning that Thorndike uses is that of a chick finding its way out of a maze. The maze is confusing because it furnishes to the chick several alternative paths to follow, of which only one leads out of the maze. When it gets out, however, the chick is rewarded by being with other chicks, "of eating, and being in its usual habitat." On the other hand, if it follows a

[1] *Ibid.*, p. 25.

blind alley, it "has the discomforts of thwarted effort." Learning is evidenced by following the path out, immediately after being placed in the maze.

In describing this act of learning, Thorndike points out what constitutes the situation and the responses. The situation is, "in essence, *Confining walls and the absence of other chicks, food, and familiar surroundings.*" The responses consist of "running around, making loud sounds, and jumping at the walls." When the chick runs to the correct place it gets out. In the process of learning it steadily reduces the number of useless movements and thus shortens the circuit between the situation and the successful response. Thorndike, therefore, concludes that learning is a matter of "strengthening and weakening of bonds between a situation present to sense and responses in the nervous system which issue then and there in movement." That is to say, the correct responses become fixed by exercise and the resulting satisfaction, while the unsuccessful responses become dulled or eliminated by virtue of the dissatisfaction which they engender. Since, however, the learning actually consists in no more than selecting for emphasis, responses which the chick makes out of its repertory of inherited situation-response connections, it may be viewed as habit formation.

According to Thorndike, then, there is nothing creative in the case of animal learning. Nothing has been added either to the situation or the response. Learning has merely resulted in a realignment of units of response with reference to each other. Responses, such as jumping up or running around, have been subordinated or completely submerged and the response of following the correct path directly upon being placed in the maze has assumed the rôle of major importance.

We shall now turn to a higher form of learning, that involved in the acquisition of concepts. Does learning of this character involve anything new, or, is it essentially the same as the learning of the chick?

In describing the subtler forms of analysis or learning, Thorndike explains how we secure such an abstract idea as "fiveness." This may be accomplished in at least three ways. The first consists "in having the learner respond to the total situations containing the element in question with the attitude of piecemeal examination, and with attentiveness to one element after another." [1] By naming five boys, five girls, five pencils, etc., and having the learner respond in such a way as to favor "the partial and predominant activity of 'how-many-ness' as far as may be," it is thought that a bond is ultimately established between the element "fiveness" and the response to "fiveness" on the part of the learner. A second way in which a connection between the desired element in the situation and the response is effected is by means of dissociation of varying concomitants. By associating a response of five to a variety of situations such as five pencils, five boys, five girls, etc., which differ in all respects except in the element five, this element of "fiveness" in the situation finally becomes distinctly associated with the response. And, thirdly, "fiveness" may be learned by having a child respond to "situations which, pair by pair, present the element in a certain context and present that same context with *the opposite of the element in question*, or with something at least very unlike the element." [2] Thus a child being taught to respond to one-fifth of a pie, a cake, or the like will have the bond between situation and re-

[1] *Ibid.*, p. 159.
[2] *Ibid.*, p. 160.

sponse brought out and strengthened by contrasting five pies, five cakes, etc.[1]

It should be observed in this description of the ways in which a concept of "fiveness" is learned that nothing new has really been learned. Thorndike finds the response of "fiveness" waiting in the nervous system to be associated with the proper element in the situation. As he himself writes: "These means utilize the laws of connection-forming to disengage a response-element from gross total responses and attach it to some situation element. The forces of use, disuse, satisfaction, and discomfort are so maneuvered that an element which never exists by itself in nature can influence man almost as if it did exist, bonds being formed with it that act almost or quite irrespective of the gross total situation in which it inheres."[2] Consequently, in the case of the learning of a concept as in the case of the chick's learning the right way out of the maze, it is presupposed that every element learned is, strictly speaking, not learned. It is embodied in our first total reaction to a situation, and learning becomes merely a name for the fact that what have hitherto been implicit S→R connections are finally made explicit. All learning is for Thorndike a matter of habit formation. The simplest physical act and the most complicated and original thought process are classified under a similar category.

But if learning at both ends of the learning scale calls for the use of nothing but preëxisting responses, or elements in situations with which responses are associated,

[1] For an excellent examination of this conception of learning *cf.* Chapter V of H. Gordon Hullfish's *Aspects of Thorndike's Psychology in their Relation to Educational Theory and Practice*, Ohio State University Studies, *Contributions in Principles of Education*, No. 1, Columbus, Ohio, 1926.

[2] *Ibid.*, p. 161.

must we not conclude that this is true of all cases of learning which occur between these points?

Our first impulse will doubtless be to reply in the negative, for does not Thorndike write, "In human thought and action a situation often provokes responses which have not been bound to it by original tendencies, use, or satisfaction"?[1] However, if one reads further in Thorndike's discussion of the higher forms of selection in learning, from which this quotation is taken, he will discover that Thorndike does not mean what he says. The sentence quoted begins a discussion in which it is argued that in each case of dealing with novel data, association by similarity, and purposive action, the explanation for the procedure is found in the presence of previously existing but subtle bonds between elements in the situation and the response. In the process of learning, connections between situations and responses may shift so that a response to one element in the situation may be transferred to another element and vice versa, but the laws of learning are confined to operations upon responses with which man is originally endowed and upon elements within situations to which he is originally sensitive. Within the range of original endowment the utmost variation is possible, but novelty is confined to confirming, establishing, or eliminating connections between what are originally inherited responses and elements in situations to which we are originally sensitive.

This conclusion follows of necessity from the restricted function he grants to the laws of learning, the principle of readiness and laws of exercise and effect. They can operate only upon what is previously given; they have no creative capacity.

[1] *Ibid.*, p. 168.

Take, for example, the Law of Analogy and the Law of Associative Shifting, which explain the conditions under which new connections are established between responses and situation elements. In the first case we may have the situation elements S^1, S^2, and S^3 connected with R^1, R^2, and R^3, respectively. Then, in case S^1 and S^2 are similar in certain respects, we may have a shifting of relationships so that S^1 becomes connected with R^2, and S^2 with R^1. Or, again, if S^1 and S^2 are repeatedly associated with R^1 and R^2, the relationships may become such that S^1 connects with R^2 and S^2 with R^1. But, it should be observed, that while this interchange of connections leads to variation in man's responses, it has not added to his original equipment of responses nor has it increased the number of situations to which he is originally sensitive.

In the next chapter we shall point to a few of the consequences for education which have come out of this conception of man's original nature. At this point we wish to indicate merely the fact that this atomistic conception of human nature is absolutely basic to Thorndike's psychology. All human action and thinking consists in the weaving of connections between original responses on the one hand, and elements in situations to which man is originally sensitive on the other. Actions and thoughts are combinations of subtle elements. Teaching, therefore, must resolve itself into a detection of pertinent responses and situation elements upon which the teacher can operate in order to further his educational designs.

This psychological version of the old proverb that there is nothing new under the sun is intriguing. It simplifies our explanation of human conduct. Moreover, it has the strength of tradition back of it; for was it not Socrates who many hundred years ago first attempted to teach men

the truth by asking questions which would make explicit what was already implicitly present in their minds? And from that day unto the present have not philosophers attempted repeatedly to reduce all novelty and variety to the manifestations of an unchanging reality?

Thorndike, however, is a strenuous advocate of the scientific spirit and is loath to draw upon philosophy or tradition for his justification of a psychological theory. Whence, then, does he derive this S→R bond conception?

Surely not from observed fact. No scientist has actually seen under his microscope the specific original responses and the situation-elements to which man is originally sensitive that later become organized into a complicated language response; nor has he detected the original units in the way of responses and situations that become associated in such a complicated and original thought pattern as Newton's conception of the Law of Gravitation. From whence, then, does Thorndike derive his theory?

Our answer is: "From biology." In thus pulverizing human experience and limiting educational procedure to the manipulation of S→R bonds, Thorndike, like his predecessors in the child study movement, drew his inspiration from biology. Biologists had become absorbed with the processes of heredity and in seeking to explain the facts of inherited traits had devised the conception of unit characters. Original tendencies to act, as well as such specific physical traits as the color of the eye, were supposed to reside within the germ plasm. The discovery of Mendelian laws, according to which characteristics of one generation reappear in succeeding generations in ways that can be predicted by mathematical formulæ, gave credence to these views. How heavily Thorndike

leans upon this biological position is well illustrated in the following quotation:

"Any man possesses at the very start of his life—that is, at the moment when the ovum and spermatozoön which are to produce him have united—numerous well-defined tendencies to future behavior. Between the situations which he will meet and the responses which he will make to them, pre-formed bonds exist. It is already determined by the constitution of these two germs, that under certain circumstances he will see and hear and feel and act in certain ways. His intellect and morals as well as his bodily organs and movements, are in part the consequence of the nature of the embryo in the first moment of its life. What a man is and does throughout life is a result of whatever constitution he has at the start and of all the forces that act upon it before and after birth." [1]

Gates, a disciple of Thorndike, is even more dogmatic. Thus on page 111 of his recent book, *Psychology for Students of Education*, he writes:

"Life begins with the fertilization of the ovum, a microscopic but very complex cell. Contained in the germ cell are certain elements or 'determiners' out of which the various bodily organs and functions develop. Certain determiners grow into certain sense organs, others become particular bones, others become teeth, and so on. Even for the most minute traits, the color of the eyes, the shape of the lobe of the ear, a peculiar notch in a tooth, there exist determiners in the germ cell. Except for the occasional congenital disturbance of the severe types mentioned, the differences among infants which appear at birth are *native* in the sense that they are the result of the unfolding, innate growth of determiners which exist in the germ cells from the beginning of life." [2]

It thus appears that what Thorndike conceives to be man's original equipment of responses to situations, are the psychological correlates of what the biologist terms "unit characters." Consequently, the validity of the psy-

[1] *Ibid.*, p. 2.

[2] Quoted by permission of The Macmillan Company.

chological theory stands or falls with the biological presupposition upon which it rests. It should be of interest, therefore, to inquire of the biologist regarding the present status of this biological foundation. Accordingly, in the next chapter, after glancing briefly at Thorndike's influence upon educational procedure, we shall inquire as to the validity of his fundamental assumptions.

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CHAPTER VII

LEARNING AS AN ACTIVE PROCESS AND EDWARD L. THORNDIKE (Continued)

When one contrasts Thorndike's descriptions of the learning process and his explanation of the nature of instinct with the vague formulations which preceded him, he realizes that his insistence upon definiteness is one of Thorndike's outstanding contributions to educational procedure. Peter Sandiford, writing in the February, 1926, number of the *Teachers College Record*, states that prior to Thorndike, educators were exhorted in much the following manner:

"Proceed from the simple to the complex."

"Start with the concrete and end with the abstract."

"Create a pleasurable excitement in the pupil."

"The genesis of knowledge in the individual must follow the same course as the genesis of knowledge in the race."

"In education the process of self-development should be encouraged to the fullest extent."

In contrast with these very broad generalizations, Thorndike, as we have seen, reduces the laws of learning to specific connections of situations and responses; and he explains and analyzes instincts in terms of definite stimulating conditions and tangible and definite responses associated with the situations.

As is characteristic of all new movements, however, the enthusiasm of a master's disciples frequently outruns his own more cautious and conservative beginnings. Thorndike is no exception in this respect; and we therefore find

flowing out of his theories several lines of influence which are productive of rashness, if not of evil, as well as good. We shall accordingly trace three outgrowths of Thorndike's work: two, limited in their vision and their practicality, and the third productive of further scientific study and advance.

In reducing learning to habit formation, Thorndike seems to ally himself with the tradition of Locke and Herbart and to reaffirm the dominating position of the teacher. It is true, of course, that Locke and Herbart minimize the significance of innate ideas and instinctive tendencies; while for Thorndike, inherited tendencies constitute the raw materials of education, and educational procedure must take into consideration their peculiar character. Nevertheless, for Thorndike, the technique of the teacher consists in utilizing psychological instruments for the analysis and diagnosis of a child's working capital of inherited and acquired S→R bonds which serve as a basis for organizing situations that lead to desirable actions; just as Herbart would have a teacher determine the apperceptive systems of ideas in a child's mind which should serve as a basis for the presentation of further ideas. Herbart presents ideas to the child's mind; Thorndike presents situations. In the one case a teacher presents ideas and in the other he manipulates what seem to be hybrid physiological-psychological combinations. For both, education resolves itself into an external operation upon the child. Method, and not the spontaneous activity of the learner, becomes the chief hope of the educator.

It is significant that Thorndike himself recognizes certain limitations in the specific S→R bond conception. In his discussion of sets and attitudes he treats of general organic conditions and other factors which are outside of any one specific S→R grouping, but which nevertheless de-

termine their character. Consequently, "what a man will think or do, and what he will be satisfied or annoyed by"—that is, how the S's and R's in any one grouping of S's and R's are related—is dependent upon a total situation and a multitude of factors both outside and within a specific S→R bond relationship. Since, however, Thorndike's main concern is with the manipulation of specific connections in experimental situations, he concentrates upon these and assumes that for practical purposes definite boundary lines can be drawn around S→R groupings. Less cautious practitioners of his theory, however, tend to ignore the subtle factors in the whole situation (the organism and its environment) which bear directly upon S→R relations. Consequently, a premium is once more set upon methods and devices as effective instruments in themselves. Drill processes are abstracted from the context which gives meaning to drill, and bodies of subject matter are broken up into teaching units which ignore the necessity for perspective and a sense of direction on the part of the learner.

Nowhere is this more evident than in the use of specific objectives for the organization of courses of study. Course of study committees are endeavoring more and more to state first the specific outcomes to which the study of a school subject should lead and to provide for these outcomes by having pupils engage in specific activities. That is, they are laboring to translate courses of study into pupil activities, but these pupil activities are designed for the purpose of developing specific, desirable pupil traits. Thus Professor Bobbitt writes in his book on *How to Make a Curriculum:*

"Objectives that are vague high-sounding hopes and aspirations are to be avoided. Examples are: 'Character building,' 'the harmonious development of the individual,' 'social efficiency,' 'general discipline,'

'self-realization,' 'culture,' and the like. All of these are valid enough; but too cloud-like for guiding practical procedure. They belong to the visionary adolescence of our profession, not to its sober and somewhat disillusioned maturity." [1]

Accordingly, "'ability to care for one's health,' for example, is too general to be useful. It must be reduced to particularity: ability to manage the ventilation of one's sleeping room, ability to protect one's self against micro-organisms, ability to care for the teeth, and so on." [2]

Under the stimulus of this demand that children be trained in specific habits and that school work concentrate upon the development of specific abilities, as against ideals and general attitudes, both ideals and attitudes tend to be lost sight of altogether. It is assumed, for example, that when the specific acts of courteous behavior are mastered, the child will have become a courteous child. The result, in practice, is frequently to deprive both teachers and pupils of vision.

Professor Brim, in discussing the Elementary Language Course of Study in the Denver public schools, calls attention to certain limitations which illustrate the point we are endeavoring to make.[3] He writes:

"On page 16, the outcomes are given not in terms of quality of voice but in terms of organ control, namely, 'Breathe from the diaphragm and support the tone with the breath.' What assistance will this give to the average teacher? On page 18, the course of study descends to the level of unimportant detail. The teacher is advised to see that the child attains ability to speak over the telephone. Detailed directions are given:

"Keep the lips about one inch from the mouthpiece and speak slowly, clearly, and directly into the telephone.

[1] Houghton Mifflin Company, 1924, pp. 32–33.

[2] *Ibid.*, p. 32.

[3] Denver, Colorado, *Elementary Language*, Denver, Colorado, Public Schools, 1926 (Course of Study Monograph, No. 18).

"Listen carefully while the operator repeats the number and say 'right' if she repeats it correctly, 'no' if she repeats it incorrectly.

"Answer telephone calls courteously.

"Announce the number when answering a residence telephone.

"Give the name of the company and the department in answering a business telephone.

"Keep telephone conversations brief.

"Be discreet, avoiding intimate conversations over the telephone.

"One would gather from this that special attention should be given to each occasion during which language is used, and in each connection the specific verbal response and other features of conduct are to be determined and taught. Why dictate what specific reply a person shall make when the operator repeats the number? Is there no room for intelligence? To reduce objectives to the level of specific words in specific situations is little short of absurd. Suppose these responses had been decreed as an objective in Columbus last year. What a dilemma a teacher would be in this month, since the telephone company has ordered its operators to cease repeating numbers. Another curriculum committee would have to be created to determine specific objectives anew." [1]

It is quite possible, of course, to take large objectives or outcomes and translate them into specific activities so that these will result in both specific habits and ideals. To do so, however, it is necessary to go beyond the specific S→R bonds involved, and to show children how habits and ideals interrelate. Consequently, desirable ideals should be presented so that they become genuine purposes on the part of pupils. When teachers succeed in so doing, the detailed activities in which their pupils engage will take on a significance and meaning by virtue of their felt relationships to a larger whole.

How this may be done in social science is illustrated in the course of study for social science in the Denver high

[1] "The Denver Course of Study for Elementary Schools," *Educational Research Bulletin*, College of Education, Ohio State University, Vol. VI, No. 1, p. 15 (Jan. 5, 1927).

schools. It provides for the division of the year's work into large units, each of which will occupy a student's time for several weeks. The course of study, moreover, contains suggestions and references to materials which will enable teachers to give pupils an intelligent introduction to each unit. It further includes such items as "things to think about" in each unit, or suggested topics for class discussion, suggestions for the pupils' first reading of the unit, map work, a guidance outline designed to assist the teacher to secure an enriched background for the unit, standards of attainment to be expected of pupils, references and suggested readings, etc. It is manifest that in such an outline it is possible for ideals of attainment and the activities essential for realizing ideals to relate intimately. Provision is made for translating ideals into specific actions and activities to derive significance from their conscious relationship to ideals.

Not only has Thorndike's influence led to a questionable concreteness in the specific applications of methodology; in the broader field of democratic educational policy, it has tended, on the assumption that instruments of measure can identify native S→R connections, to limit the educational advantages to be afforded children. Educators have taken literally the view that original nature sets the limits of education and they have assumed that the instruments now in use reveal accurately those native traits in children which are of practical importance in school. They have thus abandoned the hope of improving human nature. This task they relegate to the eugenists. In their minds the function of education is limited to selecting and grading children in terms of their native endowment and feeding them the diet which their revealed traits indicate to be appropriate.

There is thus introduced into contemporary educational procedure an attitude not unlike that of fatalism. Progressive educational systems hope to accomplish no more than to devise and utilize instruments for grading and sifting the children that come to the school, much as the farmer selects his seed corn prior to planting.

This attitude is well illustrated in a chapter written by Helen Davis for Part I of the *Twenty-Third Yearbook of the National Society for the Study of Education* (1924). This yearbook is devoted to a study of gifted children, and Miss Davis writes on the "Personal and Social Characteristics of Gifted Children." The assumption is made that the difference between a gifted child and one of normal or inferior mental ability is due to heredity. After showing that studies of gifted children seem to reveal the fact that gifted children, as a rule, come from homes of superior advantage, of higher mental heredity, and the more desirable occupational levels, she lists the social, moral, and mental traits exemplified by gifted children and discusses the resulting educational implications. She concludes that since gifted children have greater powers of sustained attention, greater intellectual curiosity, greater ability to generalize, superior imagination, a keener sense of humor, better linguistic attainments and wider interests than normal or inferior children, both teaching methods and curriculum content must be organized with reference to these differences. The amount of drill should be drastically reduced, unusual opportunities for exercising initiative and responsibility should be afforded, and the work organized in general to appeal to wider and more varied interests than in the traditional school.

No one should quarrel with the policy of adapting school conditions to the needs of the superior child. The danger-

ous consequences lie rather in the opposite deduction. Since normal pupils and pupils of inferior mentality do not reveal initiative and imagination, an equal readiness to generalize, or a capacity to assume social responsibility and the like, it is concluded that they are to be fed a diet which is not designed to develop these abilities. As a result, it is common to find school systems dividing children into X, Y, and Z groups on the assumption that intelligence tests have revealed, not undernourished conditions in the lower groups and evidences of proper or exceptional care in the middle and upper groups, but genuine differences in native traits. And thus the school continues to supply a diet designed to perpetuate the conditions revealed. A more carefully thought out plan of grouping pupils is coming to take into account the limitations in this method of providing for individual differences in ability and interest and is seeking, at least, to supplement it by utilizing criteria in addition to that derived from intelligence tests.

A more complete discussion of segregation of pupils on the basis of "intelligence" would question the wisdom of this policy of segregation on the ground that the intelligence tests thus far devised are limited because they do not accurately measure the traits they center upon for measuring, and because they do not center upon all of the traits that are significant in producing results.[1] For the purposes of our present discussion, however, it is necessary only to question the more basic proposition that the conception of inheritance in terms of preformed bonds is sound biologically.

We therefore turn to the biologist and ask him how accurately this view accords with recent research.

An answer is afforded us in the statements of the eminent

[1] *Cf.* Thorndike, E. L., "The Improvement of Mental Measurements," *Journal of Educational Research*, Vol. XI: 1–11 (January, 1925).

biologist, Professor H. S. Jennings of Johns Hopkins University. He tells us that the research work of the past twenty-five years in the nature of heredity requires us to reorganize our conceptions of the relative importance of heredity and environment. The old debates on this question, he states, were largely futile. They were futile because they proceeded upon the assumption that these are forces which can be gauged independently of each other. We now know they cannot be isolated.

Professor Jennings illustrates this truth by reference to the development of the frog.[1] He points out that the frog begins as a single cell. Now, if Thorndike and Gates are correct in the view that a germ cell contains within itself "determiners" out of which the various bodily functions and elements later develop, we should expect a rigid adherence to predetermined processes of growth and development in the germ cell of the frog. Jennings indicates, however, that while under normal conditions one-half of the germ cell develops into the right half of the body and the other half into the left half of the body, it is quite possible to induce other results. Thus if the two halves are severed, each develops into an entire animal. This suggests that the original determiners are not so rigidly determined as might be supposed. Moreover, in a later stage in the development of the young salamander, it assumes the form of a sphere in which each develops into what on first view may appear to be preordained parts. That is to say, the cells in this sphere which will produce the brain, the eye, the ear, the skin, the spinal cord, etc., are definitely known. But whether or not these sections will actually produce the appropriate structures of the body depends not

[1] *Prometheus, or Biology and the Advancement of Man*, E. P. Dutton and Company, 1925, Chapter II.

only upon the materials within the cells but as well upon the influence of conditions without the cell and relations between cells. At a certain period in the development of a cell there begins what is called a differentiating influence, the nature of which is not precisely known, which "creeps" from cell to cell and determines the nature of the chemical processes which will occur within these cells. This differentiating influence is of such a character that it predisposes the structure of each cell to develop in harmony with or to conform to the structure of the cells differentiated just prior to it.

It appears, therefore, that the central factor in development is not the presence of certain specifically predetermined "determiners" or entities within the germ cell. It is rather the chemical activity within each cell. And it further appears that this chemical activity is controlled by conditions outside of a cell as well as by conditions within it. Thus, to return to the germ cell of the frog, under normal conditions, the differentiating influence will lead the cells to become diversified into the pattern of the later structures. But if, before this development takes place, the disk of cells is cut off and turned either sideways or completely round, the differentiating influence creeps through it in the opposite direction, with the result that cells which should have formed skin develop into spinal cord, and those that should have formed eyes grow into mid-brain, or some other structure, as the case may be. Likewise, a small piece of prospective skin transplanted to the center of the eye-producing region will transform itself into an eye, or a prospective ear transplanted to another region will grow into skin or spinal cord "as its place in the pattern requires."

Jennings further points out that there comes a time in this process of growth when plasticity ends, when the fate

of the cell may be said to have been determined. The time at which plasticity ceases varies with different organisms and with different parts of the same organism. Nevertheless, the conclusion follows that what a given part of the germ plasm will produce is not determined by the *genes* alone but is rather the product of the reaction of the *genes* upon each other and the surrounding medium.

Professor Jennings, in the discussion referred to, goes on to indicate that recent researches into the nature of heredity prove that what the organism as a whole becomes, as well as the development of its parts, is likewise determined by conditions over and above its hereditary materials. He states that it is not true that because an individual inherits one set of characteristics he must manifest these characteristics. As opposed to the traditional view, he shows that a set of genes under one set of conditions will produce one group of characteristics and under different circumstances, different characteristics. And while it is true that there is a limitation upon this adaptability, to the extent that certain genes will produce under given conditions results obtainable from no other genes, this limitation is, as Jennings says, one of limitation and not one of fixed and final determination. Moreover, each individual comes into the world equipped with many sets of inherited characters. These are far more numerous than can possibly find realization. Which will develop, in consequence, depends upon the environment. It is the environment which functions as a stimulating and nurturing medium. And in this sense it may be said that the environment determines what hereditary characters will function, and heredity what shall constitute an organism's environment.

If these statements hold true regarding the physical

development of the individual, we are hardly in a position to speak of predetermined connections between situations and responses of thought and action. If the way in which the parts of one's body shall become connected is not free from external influences, we can hardly maintain a predetermined relationship exists between the activities of the organism and the fluctuating and changing conditions of the outside world.

On the basis of this biological evidence we may conclude that the conception of unit characters as definite entities or potentialities existing in the germ plasm is a conception that is no longer workable. Indeed Professor Jennings states that there is no such thing as a "unit character" and that it would be a step in advance if that expression were to disappear.[1]

But if unit characters disappear in biology, what becomes of their psychological correlates, preformed bonds? If inherited traits are outcomes of interrelations of genes with one another and with the chemical elements within and without the cell, must not the conception of preformed bonds be severely modified?

As a matter of fact, this is precisely what has happened in psychology, and it is due in large measure to the third line of influence which has come out of Thorndike's work.

We refer to his insistence upon a detailed study of instincts, the precise identification of the situations which give rise to instinctive responses, and the specific character of these responses. This has stimulated scientific observation of natural tendencies with the result that instincts have steadily decreased in number, until today many psychologists question whether in any real sense of the term there are in man any instincts at all. The familiar

[1] *Ibid.*, p. 18.

instincts such as Acquisition and Possession, Collecting and Hoarding, Hunting, Fighting, Gregariousness, Imitation, Play, Crawling, Walking, Curiosity, etc., are shown to be compounds of simple reflexes so overlaid with habits that one cannot distinguish between what is acquired and what is native.

John Watson, whose studies of instincts in young children is revolutionizing this phase of the psychology of children, writes as follows in his recent book, *Behaviorism:*

"At birth or soon thereafter we find nearly all of the so-called clinical neurological signs or reflexes established such as the reaction of the pupil to light, the patellar reflex and many others.

"We find the birth cry followed by breathing; the heart beat and all circulatory phenomena, such as vaso-motor constriction (decrease in diameter of vessels) and dilatation, pulse beat, etc. Beginning with the alimentary tract we find sucking, tongue movements, and swallowing. We find hunger contractions, digestion, necessitating glandular reactions in the whole alimentary tract, and elimination (defæcation, urination, sweat). The acts of smiling, sneezing, hiccoughing belong in part at least to the alimentary canal system. We find also erection of the penis.

"We find general movements of the trunk, head and neck best observed so far as the trunk is concerned when the infant suspends himself with the hands. Rhythmical "climbing" movements then appear. We can see the trunk at work in breathing, when the infant cries, during defæcation and urination, when turning over or when the head is raised or turned.

"We find the arms, wrist, hands and fingers in almost ceaseless activity (the thumb rarely taking part until later). In this activity especially are to be noted, grasping, opening and closing hands repeatedly, 'slashing' about of whole arm, putting hand or fingers into mouth, throwing arm and fingers to face when nose is held.

"We find the legs, ankles, foot and fingers in almost ceaseless movement except in sleep and even during sleep if external (and internal) stimuli are present. The knee can be bent, leg moved at hip, ankle turned, toes spread, etc. If the bottom of the foot is touched there is a characteristic movement of the toes (Babinski reflex); if the left knee

is pinched the right foot is brought up to the point of stimulation and vice versa.

"Other activities appear at a later stage—such as blinking, reaching, handling, handedness, crawling, standing, sitting up, walking, running, jumping. In the great majority of these later activities it is difficult to say how much of the act as a whole is due to training or conditioning. A considerable part is unquestionably due to the growth changes in structure, and the remainder is due to training and conditioning.

WHAT HAS BECOME OF INSTINCTS?

"Are we not ready to admit that the whole concept of instinct is thus academic and meaningless? Even from the earliest moment we find habit factors present—present even in many acts so apparently simple that we used to call them physiological reflexes. Now turn back to James's list of instincts on page 84 or turn to any other list of instincts. The infant is a graduate student in the subject of learned responses (he is multitudinously conditioned) by the time behavior such as James describes—imitation, rivalry, cleanliness, and the other forms he lists—can be observed.

"Actual observation thus makes it impossible for us any longer to entertain the concept of instinct. We have seen that every act has a genetic history. Is not the only correct scientific procedure then to single out for study whatever act is in question and to watch and record its life history?

"Take smiling. It begins at birth—aroused by intra-organic stimulation and by contact. Quickly it becomes conditioned, the sight of the mother calls it out, then vocal stimuli, finally pictures, then words and then life situations either viewed, told or read about. Naturally what we laugh at, whom we laugh at and with whom we laugh are determined by our whole life history of special conditionings. No theory is required to explain it—only a systematic observation of genetic facts. All the elaborate nonsense the Freudians have written on humor and laughter is just so much chaff which will be blown aside as observation brings out the facts.

"Again take manipulation. It starts at 120 days, becomes smooth, sharp and facile at 6 months. It can be built up in a thousand ways, depending upon the time allowed for it, the toys the infant plays with, whether the infant is hurt by any of its toys, whether it is frightened

by loud sounds often at the time it is handling its toys. To argue for a so-called 'constructive building instinct' apart from early training factors is to leave the world of facts." [1]

Not only are instincts tending to disappear in present-day psychology, but those instincts to which a conservative still clings do not possess the characteristics of specific S→R bonds. They are very simple in character, but vague and uncertain as regards situations and responses. Such an instinct as fear, for example, is found to be aroused by only two situations, loud sounds and sudden withdrawal of support. No one would claim that these are very specific S→R connections. Moreover, within a few hours of birth, all sorts of conditioning elements enter, so that the fear reaction may be attached to a multitude of situations. It is experience and not inheritance which gives definiteness to the connections.

Furthermore, when an instinctive response is thus connected with new situations, we do not find, apart from much repetition and carefully controlled conditions, that learning is characterized by specific S→R connections. An original characteristic of learning may just as well be said to be that of generalization, a spread of influence over wide areas of the organism and the connecting of complex responses to general conditions. Learning thus involves both the general and the specific and is better conceived of as a matter of integration of response systems than as analogous to the establishment of specific bonds. To illustrate, let us take the fear reaction as established in Albert, a boy with whom Watson experimented.[2]

Albert, an eleven-months-old boy, had played with a

[1] *Behaviorism*, The Peoples' Institute Publishing Co., New York, 1925, pp. 103–104 (now W. W. Norton and Co., Inc., New York).
[2] *Ibid.*, pp. 126–128.

white rat for a week. One day just as he reached for the rat a bar was struck immediately behind his head. This was repeated at intervals until Albert manifested fear toward the rat alone. Soon, "The instant the rat was shown the baby began to cry." A few days later a rabbit, a dog, a sealskin coat, and cotton wool were presented to Albert and in each case he manifested fear reactions, although prior to the experience with the rat, experiment had shown that he was afraid only of loud sounds and removal of support.

This same generality in learning is indicated in Watson's description of the intimate relationship between what he calls the manual, the language, and the visceral organizations. In his chapter on "Do We Always Think in Words?" he shows that "our hands, larynx, and viscera learn together and later function together. Under the influence of social demands, the young, developing human who has well entered into his world of speech has to put on his verbal and visceral habits simultaneously with his manual habits." [1] It is also true that these three systems become so intimately related that they substitute on occasion for one another.

This intimate relationship, of the manual, the language, and the visceral systems, as Watson shows, has direct bearing upon the difficulties in speech development which frequently follow an attempt to break up the habit of left-handedness. But it indicates as well, how complicated is the organization of activities which is involved in a simple act of learning, and how important for the school are the lessons that follow. A system of learning that is purely verbal, or which seeks to isolate the intellectual from the physical and the emotional elements of one's nature is in grave danger of resulting in abortive outcomes.

[1] *Ibid.*, pp. 202–203.

We must conclude, then, that the explanation of learning in terms of S→R bonds has definite theoretical limitations. Biology gives no sanction for the conception of preformed bonds and school practices based upon the theory of supposedly inherited ability traits is shortsighted and dangerous. Since prior to birth there begins a blending of experience and nature which continues throughout the lifetime of the individual, no surgeon's knife is sufficiently skillful to separate the one from the other. The function of the educator in creating human nature is more potent than he has been willing to believe.

But is not learning nevertheless a matter of the formation of habits? And are not habits reducible to specific S→R connections established during the lifetime of the individual? If so, are not the conditions of habit formation a matter primarily of external control and education, to be conceived of as in this sense essentially a passive affair in which the teacher, or some phase of the world external to the child, exercises the determining function? Have we not ended, as we began, with what are substantially the views of Locke and of Herbart?

To the answer of these questions and the implications in our answer, we must now turn our attention.

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CHAPTER VIII

LEARNING AS AN ACTIVE PROCESS: A REINTERPRETATION

In the last three chapters we have traced certain educational implications in the theories of G. Stanley Hall and Edward L. Thorndike. Hall, as we saw, conceived of the child as roughly recapitulating the history of the race and he thought that racial tendencies which manifest themselves in the form of instincts constitute the main guide lines for educational method and the selection of subject matter. Thorndike builds his educational theories upon different principles. Original nature, for him, is reducible to inherited specific connections between stimuli and responses; and learning, or acquired behavior, is explained in terms of specific stimuli and specific responses related in the lifetime of the individual.

Some of the difficulties involved in Thorndike's view of instincts were pointed out in the last chapter. We saw that as against Thorndike's attempt to specify with some detail the inherited responses which go to make up an instinct and the specific elements in the situation with which these responses are natively connected, instincts are now viewed as much more flexible adaptations to environmental conditions. The number of situations to which people are originally sensitive is much smaller than formerly supposed, and the ways in which they respond to these situations are much more fluid than Thorndike describes. The child, as Dewey says, comes into the world as a center of vital energy seeking outlets for discharge. These outlets

are at first its crude and random and uncoördinated impulses to action which at once become incorporated with the environment. Since individual children possess in common roughly similar structures and since relatively constant outer influences operate upon them, it is not strange that many of their activities should possess similar characteristics. These common characteristics have hitherto passed for instincts. In reality they are a blending of outer conditions with inner factors of such a subtle and intricate nature that they seem of one strand.

Upon close inspection the "instincts" of two children are never found to be identical; they differ both as regards the objects that constitute the "situation" and the behavior which is termed the "response." How differently a given "instinctive" impulse or emotion will manifest itself under different environmental circumstances, is well illustrated by Dr. Thom, who is an authority on habit formation in young children. He writes:

"We must not forget that the same identical instinctive drive which is denied, thwarted, or inhibited, arousing the same undesirable emotion, may manifest itself quite differently. As problems presented in four different individuals the following are examples: (a) he fights, is aggressive and pugnacious; (b) his demands for attention from his mother are of such a quality and such a quantity that they have gone beyond normal limits; (c) he is sullen, resentful, and inclined to be moody; (d) he is shy, self-conscious, and retreats when confronted with the commonplace problems of everyday life.

"In each of these four cases the conduct of the individual was quite different. Objectively one could see no common basis for the types of reaction presented, but from a careful investigation into the life history of these individuals, we find that the underlying cause in each of the individual cases was a reaction to that emotion which we commonly call jealousy." [1]

[1] "Importance of Both Health and Happiness for Children," *American Review*, Vol. III, pp. 351–352.

And again, to quote John Dewey on the manifestation of the instinct of anger:

"A child gives way to what, grossly speaking, we call anger. Its felt or appreciated quality depends in the first place upon the condition of his organism at the time, and this is never twice alike. In the second place, the act is at once modified by the environment upon which it impinges so that different consequences are immediately reflected back to the doer. In one case, anger is directed say at older and stronger playmates who immediately avenge themselves upon the offender, perhaps cruelly. In another case, it takes effect upon weaker and impotent children, and the reflected appreciated consequence is one of achievement, victory, power, and a knowledge of the means of having one's own way. The notion that anger still remains a single force is a lazy mythology. Even in the cases of hunger and sex, where the channels of action are fairly demarcated by antecedent conditions (or nature), the actual content and feel of hunger and sex, are indefinitely varied according to their social contexts. Only when a man is starving, is hunger an unqualified natural impulse; as it approaches this limit, it tends to lose, moreover, its psychological distinctiveness and to become a raven of the entire organism." [1]

Not only are instincts being thought of today as something quite different from definitely inherited responses bound to specific situation elements, but Thorndike's conception of learning is likewise being subjected to reexamination. This follows from the fact that he reduces learning to habit formation in which the determining factors are preformed bonds. This conception of preformed bonds, as we also pointed out in the last chapter, rests ultimately upon a biological theory of the inheritance of unit characters. This biological theory, however, is undergoing modification, and, consequently, the psychology based upon it must experience a similar reconstruction.

Thorndike has himself indicated the trend this reconstruction should take in his Law of Set or Attitude. In

[1] *Human Nature and Conduct*, Henry Holt and Co., 1922, pp. 152–153.

discussing this law he indicates that: "The response to any external situation is dependent upon the condition of the man, as well as upon the nature of the situation." By this, he means that the way in which we may respond to a specific situation is influenced by conditions in the organism over and above the specific connections in question. Thus, "The situation 'a certain printed word' has different effects upon learning, according as the child in question is bent upon reading or upon spelling; the figures $\{^{247}_{126}$ obviously determine learning differently according as the pupil is predisposed to copy, to add, to subtract, or to multiply; the same hand provokes one response at cribbage and another at whist." [1] Likewise the attitude or set, according to Thorndike, determines what an individual will be satisfied and annoyed by. "Hunger not only puts certain actual connections in operation: it also makes certain conduction units more ready to conduct." [2]

This Law of Attitude, however, is a leak in the dike. Once attention is drawn to these exceptions in which related response systems, or the state of the organism as a whole, play into specific conduction units and determine how they shall function, an opening is made for a closer inspection of what have hitherto been thought of as insulated specific S→R connections. This closer inspection reveals the fact that in every act, to a greater or less degree, the entire organism functions. While in the performance of a specific act certain parts of the body are obviously more conspicuously and intimately involved than others, there is, nevertheless, no hard and fast line that can be drawn about a response system outside of which it may be said: "Here

[1] *Educational Psychology* (Briefer Course), Teachers College, Columbia University, New York, 1917, p. 144.
[2] *Ibid.*, p. 145.

ends the groupings of responses." In learning to write, for example, the right arm and hand seem to be rather definitely involved; and yet it is known that the unused left hand is thereby influenced in such a way that learning to write with it is simplified. What is sometimes spoken of as the integrative action of the nervous system, is a name for the fact that sense organs such as eye, skin, ear, nose, etc., as well as sense organs in the muscles and tendons and viscera, are connected by intricate neural systems with reacting organs such as the striped or skeletal muscles and the unstriped muscles and glands. Consequently, activity in one portion of the body affects other portions, and, in turn, is determined by influences operating in other parts.[1]

[1] R. M. Ogden, in his *Psychology and Education*, shrewdly remarks:

"Our attempts to provide a satisfactory method of education in the acquisition of skill have largely failed, because our principles have been mistaken. In many textbooks of education one can find the statement that a skillful performance is built up from a series of more or less discrete partial responses. By a process, sometimes called integration, which however reduces itself to the law of habit-formation through frequency of associative connection, acts, at first loosely connected one with another, become fused together. This fusion is supposed to result from practice, which facilitates the connection of the acts by wearing down the rough edges of their joints. The principle we are maintaining, which has already served us in our elucidation of instinctive behavior, reverses this assumption. Instead of supposing that the organism is equipped at the start with a number of reflexes that become integrated, or associated, by a kind of linkage into instincts and habits, we have found ample reason to believe that a total response of the entire organism precedes any differentiation of partial activities, either in the phylogenetic series that accounts for the evolution of reflexes, or in the ontogenetic course of forming habits. Consequently, the acquisition of an act of skill is not a recombination of distinct and separate acts already in the possession of the organism, but the creation of a new form of response which appears suddenly with no other likeness to its antecedents than the genetic identity of this form with the matrix of behavior from which it arises.

"The general course of this development in man is indicated by a control, first, of the whole body, then of the shoulder, the arm, the forearm, and, finally, the hand. Each of these members serves successively as the matrix of a more refined muscular control, the specific act of skill arising suddenly within its appropriate matrix when the body has matured and the condi-

It is, consequently, an oversimplification of the facts to explain learning as a matter of establishing specific and definite relations between neural-muscular units on the one hand and situations on the other. As a matter of fact, in a learning activity the "parts" of the learner's nervous system, his sense organs, his muscles, his bones, his vital organs, his glands, etc., which are involved in his actions, are functioning in such a way as to influence each other in a most intimate and intricate manner. This means, as regards a group of S→R bonds, we must say that in the process of learning, both internal and external relations are constantly being established. Few acts are performed under similar conditions, so that in learning the simplest act of skill the *same* "bonds" are not involved, but rather interacting activities are linked in new ways. The situations under which some acts are performed are, of course, more constant than others; but, in general, the *sameness* of an act applies to the outer *result* rather than to the activities involved in producing the outcome. The ball pitcher who is "steady" is one who meets the ever-varying situations of the game in such a way that the same curves and speed are produced under differing circumstances. An analysis of his activities, including glandular secretions, etc., would

tions are ripe for its appearance. Thus, every act of skill is the focussing of behavior upon a new rhythm of response. Only with reference to the place which the specific act occupies in the total economy of behavior can we understand the appearance of such a rhythm. Consider, for instance, the nicely balanced manipulations of a skilled hand-worker. What in infancy was a crude total-response, focussing upon the rigid contraction of the finger-muscles, has now become a finely differentiated, variable response in which each finger plays its appropriate part with reference to the matrix from which the response has emerged. Similarly, the coördination of the smaller muscles employed in handwriting emerges from a gross response in which pen or pencil was at first grasped and propelled over the paper by main force of shoulder and arm as well as by fingers and wrist." (Harcourt, Brace and Co., 1926, pp. 140–142.)

reveal his habits of pitching to be composed of rapidly shifting physiological adjustments. The older psychological descriptions of habit as routine performances are thus inaccurate, partly because these descriptions are confined to the more gross and more obvious acts of the organism, but mainly because they attribute a constancy to the activities of the human being which is better ascribed to the outer results of his activity.

A further limitation in Thorndike's description of learning becomes apparent when we consider his explanation of learning in terms of the elimination and the perpetuation of connections. In what sense can we say that a bond between a situation S and a response R is eliminated? If, in the familiar illustration of the child reaching for the lighted candle, the burn and the resulting pain actually resulted in eliminating the connection between seeing the light and reaching, would it not be impossible for the child later to reach in response to the stimulus? As a matter of fact, on certain occasions, reaching results on presentation of the light, and on other occasions in withdrawal. Consequently, what has been called an eliminated response is better termed a submerged response. And it is submerged only in the sense that in connection with certain other stimuli and responses, it does not function conspicuously; whereas in a different set of relationships it may continue to do so. To say that bonds are formed or are eliminated would seem to be, then, no more than a figurative way of designating the relative importance that a specific reaction assumes in a given act. It is misleading, however, because it suggests that the explanation for the disappearance of an act, such as withdrawing the hand from the light, is found within a specific S→R connection, rather than in a backward and forward play of influences of such a character that a

given response element figures prominently in one context at one time while in another context it is relegated to the background.

Not only must we abandon a unitary and atomistic conception of reactions in the learning process; it is necessary also to conceive of situations as fluid affairs. Thorndike seems to think that the elements in a situation are given prior to learning; and that a situation is constituted of discrete elements which become connected with responses. This description, however, accords with the report of an *observer* of an act of learning. For the *learner* the situation is something quite different. It is not made up of elements independently given. In the course of solving a problem the situation, as the learner experiences it, undergoes progressive modification. What may be at first a "blooming, buzzing confusion," gradually assumes some semblance of meaning and arranges itself in such a manner that the learner can find his way around without difficulty. And, however important it may be for a laboratory specialist to describe the situation or the stimulus in an experiment in learning as made up of constant and unchanging factors, it is equally necessary for the educator to appreciate and understand how the situation, from the standpoint of the learner, undergoes modification. And, since the validity of a classification turns in part upon the purpose it serves, we may say that it is legitimate in the one case to consider the stimulus as given throughout, and in the other to recognize that it changes constantly. From the learner's point of view, however, the stimulus and the reaction grow up together.

As Bertrand Russell well says, there are no "objects" for the young child. Objects and meanings grow up with the child's experiences; they are functional relations that

gradually develop out of an intimate interplay between the child's neural, muscular, and visceral organization and his surroundings. A "situation" is thus a *construct* out of the individual's contact with his environment and not an independent object "presented" to him and tied by a "bond."

A "subjective" verification of the fact that the common objects of our environment are constructs, can be had by a few moments' reflection. Consider how different a college campus appears to us after four years of residence, from its appearance the first day we entered college as a freshman. The now familiar objects were then strange and uncertain. The various experiences of a few years have painted the scene in different colors and introduced new perspectives. For ordinary purposes we say that *we* and not the objects have changed. The exact truth is that objects *as we know them* have kept step with the transformations in our own lives. Our own activities flow over and around and through objects in such a way that they become saturated with qualities which are, strictly speaking, the result of an intimate interplay between ourselves and them, between the inner and the outer.

We conclude, then, that in contrast with a description of learning as an activity in which preëxisting elements in situations arouse response units to activity by virtue of the existence of preformed bonds between these situations and responses, present-day psychology is emphasizing the creative aspects of learning; creative in the sense that each act of learning involves a reorganization outwardly of the situation and inwardly of old response systems. In each act of learning, be it habit in the conventional sense, or the solution of a new problem, previously used pathways of discharge undergo transformation.

But, it may be asked, what difference does this point

of view make in one's attitude toward learning situations? What bearing has this upon such things as drill, habit, or thinking?

In the first place, this conception carries with it a new attitude toward the nature and the purpose of drill. Drill is conceived of as existing for purposes other than the mere perpetuation of bonds. In the process of drill there is, to be sure, a concentration upon certain essential actions but drill is also viewed as the acquisition of the ability to perform these actions irrespective of distractions and, at times, under rapidly shifting or changing conditions. That is, drill, to be reliable in its outcome, must include a training which will insure stable and regular results under varying as well as under constant conditions.

Moreover, when it is realized that habits include responses which extend over wide areas of the organism, including the visceral field and the glands as well as the most obvious parts of the body engaged in the action, attention is drawn to factors surrounding drill and habit formation that might otherwise escape attention. We become sensitive to conditioned emotional responses connected with drill which are basic in determining attitudes. Thus we know that the emotional tone which accompanies an act is the result of associated responses in the viscera, the glands, etc. This emotional tone is, moreover, most potent in facilitating or hindering learning and in determining retention and adaptability of recall. Accordingly, the educator must concern himself with what Kilpatrick calls "associative learnings." These associative learnings are by no means confined to specific S→R bonds. They arise out of the setting in which a learning activity is placed. They point the moral that routine activities, to function vitally, must be given motivation in the way of

favorable attitudes and dispositions. Thus obedience in certain essential items is an important habit to inculcate, but more important is the attitude of complying willingly with the requests or the instructions of those in authority. It is conceivable that a child will learn to perform more or less automatically specific commands in obedience to authority, but his general attitude toward authority, and consequently his unsupervised acts in relation to authority, will be determined by the emotional reactions which have permeated his specific training.

A striking illustration of the way in which emotional reactions to the environment will seep into what seem to be remote learning situations, is given by Morgan in his book *The Psychology of the Unadjusted School Child*. He relates the following incident of a boy who could not spell:

"This nine-year-old boy was in the fourth grade and did good work in every branch except spelling. He had an intelligence quotient of 110 and there seemed to be no reason why he could not learn this one subject. The complaint was that he could not spell even second-grade words while all his other work was good enough to warrant passing him to the fifth grade. The school authorities did not know whether to keep him in the fourth grade for another year or pass him in spite of his defective spelling.

"In a hospital to which he was taken for examination it was found that he could spell most of the fourth-grade words. He could pass a standard spelling test, but there were some very simple words on which he failed. On analysis it was found that he could not spell such words as: *girl*, *mamma*, *sister*, *mother*, etc. On the other hand he could spell such a word as *chemistry*. Further, the way in which he misspelled was significant. Asked to spell *girl* he would try every way but the right way. He would spell, *gurl*, *gerl*, *girle*, *gerle*, *gurle*, *gyrl*, etc. He never was able to get the correct combination. It looked as though he was carefully avoiding the right spelling. He did the same sort of thing with the other simple words that he could not spell.

"The boy was found to have some queer notions about girls and

women, which had developed as a result of unwise training by his mother. As a result of this he had a terrific conflict which he projected against spelling any word that related to the female sex. After one conversation in which these things were brought to light he suddenly said, 'I can spell *girl* now, *g-i-r-l*. I used to be able to spell it before; I just forgot it, I guess.' The other words came back with equal ease." [1]

A further characteristic of recent psychology is its emphasis upon the dynamic character of habit. It views habits not only as ways of behaving which lead to identical results under varying circumstances, but as active tendencies to act. Habits, as Dewey points out, do not wait upon stimuli; they search out their stimuli. Professor Bode has put this conception of habit very well as follows:

". . . we have become accustomed to think of the body in this connection as though it were inanimate and inert, rather than a living and dynamic thing. Habit has been compared with a crease in a sheet of paper. If paper has once been creased it will always tend to fold in the same place. But this tendency shows itself only when the paper is handled by someone. The paper does not try to fold itself when it is let alone. On the other hand the habits of a living body do try to express themselves apart from an external stimulus. This is quite obviously the case with such habits as drinking and smoking. A person who has formed those habits gets restless when there is no opportunity to indulge them. But this applies to other habits also. . . . Habits are the forms or channels through which the unborn impulses or 'drives' of the body find expression." [2]

In Chapter VI we observed that Thorndike explains thinking in terms of habit formation. He believes that a solution which one arrives at when dealing with a novel problem is explained in terms of exercise and effect. As he states it, "Learning by inference is not opposed to,

[1] Quoted by permission of The Macmillan Company, 1924, pp. 195–196.
[2] From *Modern Educational Theories*, 1927, p. 196. Quoted by permission of The Macmillan Company, New York.

or independent of, the laws of habit, but really is their necessary result under the conditions imposed by man's nature and training." [1] The conception of thinking which follows from the theory of learning advanced in this chapter likewise finds a similarity between thinking and habit formation. In contrast with Thorndike's procedure, however, it views habit formation as a reorganization of experience. In the same way thinking is described as essentially a creative experience. In thinking, habits play a significant rôle, but habits undergo reorganization. As Professor Bode has said:

"As our store of meanings increases, our habitual reactions are changed. Friendliness in a child is very different from friendliness in a man with wide experience of human nature. When the discovery of meanings calls for a special procedure of reflection and inquiry, it is called thinking. We think because our former habits of response are inadequate, and the results of thinking show themselves in the modification of our habits. Thinking may be defined as a process of finding and testing meanings. In terms of bodily reaction, it is a process of reorganization of habits." [2]

The basis for thinking is laid by building up complex and variable systems of response in relation to objects of experience. Such complex and variable systems of responses may be called concepts and, as such, furnish the thinker with alternative ways of responding to novel situations. Out of such a background of experience the new is interpreted in terms of the old, but the old likewise takes on new relations and connections; that is, new and deeper meanings. It is for this reason, if we may quote him again, that Professor Bode writes:

[1] *Educational Psychology* (Briefer Course), Teachers College, Columbia University, New York, 1917, p. 158.

[2] *Modern Educational Theories*, 1927, pp. 199–200. Quoted by permission of The Macmillan Company, New York.

"Education is sometimes called world-building. The term calls attention to the fact that effective education is a progressive remaking of our environment. Educated persons live in a world that is inaccessible to the uneducated except through education. In terms of the individual, education is a process in which old habits are modified and new habits are formed. A pupil learning to write makes use of old habits since he has already learned to move things about with his hands. These old habits become the material out of which the new writing-habits are formed. When the pupil begins the study, say of American history, he has already formed the habit of thinking about foreigners and foreign countries in certain ways, he has some notions of geography and of government, and he has some sort of notion about the flag. All these ideas are probably very vague, although he does not realize this, but they represent responses that have become more or less habitual. These notions or habits furnish the raw material for the teacher. When the end of the course is reached, the pupil still has these notions or habits, but—if he has learned anything—they have undergone extensive transformation. The new facts that have been learned serve to reinterpret or give new meanings to the old facts. For example, the pupil may begin the study of history with a certain knowledge of elections and voting. When this knowledge is illuminated by the facts of history he is in a position to see that the right to vote is a right for which men in the past paid a big price and that the sanctity of the ballot is bound up with everything that we consider most important in our public affairs. He gains a sense of the duties and privileges of citizenship, not by a passive acceptance of what he is told, but by a reconstruction of his old notions or habits of thought, and this process of reconstruction is a process of thinking." [1]

Present-day educational theory may be said, therefore, to repudiate both the followers of the Lockian tradition and the extreme adherents of the doctrine that education must follow the nature of the child. Locke and Herbart, and in certain respects Thorndike, conceive of the learning process as controlled primarily from without. In designating the relation of stimulus and response by the symbol

[1] *Ibid.*, pp. 209–211.

S→R, in which the arrow leads from the S to the R, Thorndike indicates the superior influence of the situation in the learning process. And in teaching, accordingly, attention centers chiefly upon the activity of the teacher. The responses of the learner are expected to follow the stimuli of the schoolroom situation. On the other hand, the new psychology does not proceed exclusively upon the theory that the child contains within himself the laws of growth. This view merely reverses matters and reduces the educator to the position of "following nature." The problem of education, as now conceived, in contrast with these two theories, consists in relating in profitable ways two active factors. The child comes into the world with impulses to activity, but the precise direction which these activities will take and how they will become coördinated with one another depends upon the second active and changing factor, the environment. Growth and development of the individual consists in the joint products resulting from the interaction of these two classes of activity.

What principles of procedure this situation calls for, we shall endeavor to outline somewhat more concretely in the next chapter. At this point we wish to stress one conclusion which it suggests as regards the teacher's procedure with the child.

In their book, *Psychology, Its Methods and Principles*,[1] Perrin and Klein discuss rather fully contemporary theories of learning. It is significant that in listing the different phases of an act of learning which require explanation before learning can be understood, they mention first, the motor set, the original impulse, the drive or purpose. They point out that this first phase of learning is of peculiar importance. On the higher levels of learning it constitutes

[1] Published by Henry Holt and Co., 1926, Chapter V.

what we commonly call purposes, ends, ideals; but no learning will take place unless there is an initial drive in the subject; a drive sufficient not only to start an action but to see it through in spite of difficulties; a drive which gathers momentum from success. The familiar maze experiments with rats and mice, or the box or cage problems in which is tested an animal's ability to learn how to manipulate locks and springs or the like, have back of them the impulse to secure food or to escape from hurtful situations.

What the psychologist thus terms a drive, or an impulse to activity, is what the educator designates as motivation. The new psychology and the new education alike agree in centering upon this aspect of activity as of supreme importance. Both in teaching, however, and in explaining learning from the standpoint of a psychologist, it should be borne in mind that the drive to action not merely initiates action but it sustains action as well; and its persistence is dependent upon the conditions under which an activity is run off, as well as upon the way in which it is begun.

It should be observed, however, that the drives, that is the purposes, the interests, the fundamental concerns of life, are the product of nature and nurture. This fact forces upon the educator, prior to actual teaching, the responsibility of analyzing and studying very carefully what the Herbartians have called the apperceptive background of the pupil. The knowledge thus obtained becomes one basis for organizing and presenting school experiences. Secondly, this dual origin of interests and working incentives requires that the teacher scrutinize his procedure at all times with a view to determining to what degree the active interests of his pupils are working in harmony with the purposes of the school.

It would seem, therefore, that present-day biology and

psychology are laying the basis for a new orientation in education. Educators find themselves once more in a strategic position, with rich opportunities for good and for ill in creating the warp and the woof of children's lives. There is restored to them once more the possibility of building out of human materials a social order somewhat in harmony with the heart's desire.

Biology indicates that events do modify the nature of the child. From a certain point of view we may say that its elders and its fellows stamp upon it the image of their habits and their character. It absorbs the prejudices, the codes of conduct, and the language of the family and the community to which it belongs. Thoughts, dispositions, customs, ways of life become the conditions for the expression of its activities, in such a way that they become bone of its bone and flesh of its flesh.[1]

This is, however, never a purely passive absorption. No child even physically is an exact replica of its parents. Differences of physical structure, glandular secretions, metabolic conditions, peculiarities of growth and nourishment, and a multitude of individual and unique experiences cause it to act in novel ways upon its surroundings and to exercise a selective influence upon what it appropriates from the experiences shared with its fellows and its elders. Thus everything received into the child's nature is dyed by his own peculiarities. Even his language, while that of his group, is at the same time individual in accent and tone.

No generation or individual duplicates exactly the life into which it is born. What is true of every colonization is only less strikingly true in every community as one generation succeeds another. When the Englishman colonized

[1] *Cf.* Dewey, John, *Human Nature and Conduct*, Henry Holt and Co., 1922, Part I, Sec. I, on "Habits as Social Functions."

New England and the Frenchman colonized Canada there came into being a New Englander and a French Canadian. Not only has each made over his physical surroundings and created a social environment in his own image, but the struggle with external conditions has transformed the two original types in such a way, that the New Englander is strikingly different from the Englishman, and the French Canadian resembles but faintly the original Frenchman.

What is true of these two types holds true of every boy and girl. They are the product of two factors, the self and the nonself, neither of which can operate independently. A human being grows like a snowball endowed with the capacity for self-propulsion. As it rolls along it takes up into itself what it passes over, and its constitution, at any one moment, determines what it will pass over and collect unto itself.

The intimate way in which our environment determines our constitution is well shown by several English experiments to which Professor Bagley refers in Chapter VII of his *Determinism and Education*. As we observed in Chapter VI, when discussing the applications of intelligence testing to school conditions, a child's native ability is said to decide what he can get out of his educational opportunities; that to him possessed originally of many talents, much shall be given, while he of little talent can eat only sparingly of the curriculum. But now, certain English investigators show that the food (intellectual and social, as well as physical) which we eat determines to a considerable extent the talents of which we are possessed.

For example, a study was made of the intelligence of canal boat children. These children have practically no school facilities and little contact with people outside of their own families.

"When the intelligence-tests were applied to these children, the average intelligence quotient was found to be very low (69.6), or only a little higher than the average rating of children in schools for true mental defectives. The most significant finding, however, was that the intelligence-quotients of children from the same families decreased steadily from the youngest (of those tested) to the oldest. In other words, the youngest children tested (from four to six years old) compared favorably with children of the same pre-school age living under normal conditions, the average intelligence-quotient being 90 for this group, and the deviation from the normal (100) being perhaps explicable in terms of the social isolation already referred to. The oldest children tested (twelve to twenty-two years), however, had an average intelligence-quotient of only 60, or so far below average children of the same age living under normal conditions as to stamp them as distinctly subnormal. Inasmuch as these comparisons hold within families the conclusion is inescapable that the lack of schooling is the causal factor in producing the low intelligence." [1]

We conclude, then, that neither the view represented by Locke and Herbart nor its opposite, the theory of Rousseau, is a correct statement of original nature. Learning does not begin with a blank tablet upon which experience writes what it wills, nor is human nature in its beginnings a group of well-defined tendencies to act and feel and will in specific ways independently of environmental conditions.

It is therefore in a peculiar and a unique sense that we may say the center of gravity in education rests with the child, and our teaching procedure must adjust itself accordingly. The child's nature is not a mystic scroll wrapped and sealed awaiting the favorable circumstances which will enable it to unroll in a preordained manner. Nor is the child's nature to be conceived of as alien material which must be worked over according to preconceived plans. The teacher and the textbook are no longer to dominate the situation as they once did. On the contrary the child's

[1] *Determinism and Education*, Warwick and York, Inc., 1925, p. 141.

coöperation and initiative are all important and his interests ever the seed for later harvests.

In the next chapter we shall endeavor to indicate some of the general bearings of this point of view upon teaching methods and organization of subject matter.

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CHAPTER IX

SOME EDUCATIONAL PRINCIPLES INVOLVED IN THE THEORY OF LEARNING AS AN ACTIVE PROCESS

It is now time to observe some general conclusions which follow from the conception of learning as an active process. It will be recalled that we are contrasting this theory with the passive conception of learning which dominated teaching method at the time the recitation and group method of instruction developed. In keeping with the views then prevalent the mind was thought of primarily as a receptacle for outside impressions, and the subject matter of education considered in terms of information and abilities requisite for adult life. Schooling was literally a preparation for the real business of living, but the real business of living was not thought of as beginning until school days were over.

According to present-day psychology, on the other hand, learning is no such stamping-in process. It is an activity which depends for its success upon two factors. The first factor is a child's impulses to act which reach out and establish relations with the environment. As John Dewey very well states: "The environment can at most only supply stimuli to call out responses. These responses proceed from tendencies possessed by the individual." [1] The inner uniqueness of each individual accounts for the fact that two children in the same home are, accurately speaking, under different environmental influences. Since the en-

[1] From *Democracy and Education*, 1916, p. 30. Quoted by permission of The Macmillan Company.

vironment is what one reacts to, we have actually two environments when the same word spoken to two children elicits in the one case a cheerful response, and in the other a brooding resentment. That is, the tendencies to action resident within the child select from the environment the forces which act upon him.

The second factor in learning is the environment, which likewise exercises a selective influence upon the child's impulses to act. When one set of conditions play upon him it will call forth one group of reactions. Change the situation and a new organization of activities will follow. Since the environment, in this sense, controls action, it may be said to determine the structure of our being and to make us what we are.

Thus viewed, the educative process is a dynamic affair. Change is its fundamental characteristic. The self is not something a child starts with and carefully preserves intact throughout the vicissitudes of life. It is rather the product of a fruitful intercourse between inner and outer conditions. Professor M. C. Otto sums this up in the following words in his description of the self:

"We are accustomed to think of the self as the unfoldment of an unborn portion of human nature, or as a core of psychic being upon which impressions are impinged from without much as an apple may be stuck full of cloves. In truth, it is something very different. It is a center of energy, a going concern, acting and being acted upon, which gradually came into existence as the native impulsive life of the individual was organized into meaningful habits under stress of a social and physical environment. It is a fluctuating collection of desires, aptitudes, hopes, and the like, which as a result of the give-and-take relationship of an active organism and an active environment, have come to keep house together in the same body and are there felt to be members of one family." [1]

[1] *Cf.* Chapter on "The Self," in *Things and Ideals*, Henry Holt and Co., 1924.

It is evident that the implications of this conception of the nature of the self and the educative process are most significant and the applications far-reaching. In this chapter we can mention only several applications to the curriculum and teaching method which contrast with traditional procedure.

The first significant contrast between present-day teaching and the methods employed prior to Rousseau, is the importance now assigned to motivation. By this statement we do not wish to imply that there were no early educators who recognized the essential place of interest in education. Indeed it was John Locke who wrote the following noteworthy words:

"None of the things they are to learn should ever be made a burden to them, or imposed on them as a task. Whatever is so proposed, presently becomes irksome; the mind takes an aversion to it, though before it were a thing of delight or indifference. Let a child be but ordered to whip his toy at a certain time every day, whether he has, or has not a mind to it; let this be but required of him as a duty, wherein he must spend so many hours morning and afternoon, and see whether he will not soon be weary of any play at this rate. Is it not so with grown men? What they do cheerfully of themselves, do they not presently grow sick of, and can no more endure, as soon as they find it is expected of them as a duty? Children have as much a mind to show that they are free, that their own good actions come from themselves, that they are absolute and independent, as any of the proudest of you grown men, think of them as you please." [1]

Unfortunately, however, Locke was a tutor of young men designed to become English gentlemen and not a schoolmaster who put these views into operation in the schools. His precepts, therefore, were not practiced. The schoolmaster's attitude in his day is better expressed in the following quotation from Dr. Alexander Hill's defense of the

[1] *Some Thoughts Concerning Education*, Sec. 73.

classics, which we take from John Adams's *Modern Developments in Educational Practice:*

"Some part of the credit for this most desirable result must be attributed to the discipline of working at a subject which offers in itself no temptations to work. No advantages from the schoolboy point of view are near enough to his own life to arouse his curiosity. His only motive for learning his lesson is that this master tells him to do so; and this, we think, should always be sufficient." [1]

This quotation is evidence of the general fact that teachers who went directly counter to all appeals of childhood were in perfectly good standing. And, indeed, the respect which is still accorded the "good disciplinarian," without investigating carefully the sources of his success, is an indication that pupil motives are still frequently considered to be more or less irrelevant to teaching.

Moreover, where the importance of motivation in educative procedure is realized, incentives are frequently placed outside rather than inside instruction. That is to say, students are urged to do well in their studies for the sake of some external reward such as winning a place on the honor roll, or a class is stimulated to raise its median of achievement in order to surpass another grade, etc.

Some time ago the writer's eight-year-old boy greeted him with the following suggestion:

"Dad, won't you take all the children in my room to the movies Saturday afternoon?"

This philanthropic urge seemed to warrant investigation; hence the boy was asked to explain the reasons for his request. His reply was: "Well, I was elected President of the Kindness Club last week because I picked up the chil-

[1] University of London Press, London, England, 1922, p. 209. (Published in the United States by Harcourt, Brace and Co., New York.)

dren's wraps in the hall and I want to be elected President again."

It seems that this coveted office rested upon the sovereign vote of the class.

"But, don't you see," he was told, "kindness means more than having your Dad take children to the movies? If you are really trying to be kind to people, why not be a little more patient with your brother when he bothers you? And don't you think you could help Mother without grumbling when she asks you to hang up your wraps at home, or to run on errands for her? This seems to me to be *real* kindness and much more important than just having one's Dad pay admission to the movies for one's classmates."

"Why, Dad, you never do understand anything! What you do at home doesn't count. The children never see that, and they won't vote for me unless I am kind to *them!*" was the unanswerable reply.

By genuine motivation we should mean something more than reference to external appeals. In his book, *Interest and Effort in Education*, John Dewey distinguishes carefully between external and internal stimulations to action. He shows that practitioners of "soft" pedagogy who identify interest with the externally exciting, with the sensational, and the task masters who resort to fear of consequences as a stimulus to work, are alike in so far as they both place the appeal to action in conditions without the learning activity. Genuine interest, Dewey goes on to say, involves an identification of the learner with the task in hand; the propelling incentives are found within the task; and consequently genuine interest and meaningful effort are identical and not in opposition to each other.

A significant step forward educationally was made when the instinct psychology began to influence the life within

the schoolroom. Original nature, as thus conceived, dictated the selection of subject matter appropriate to child nature and it suggested disciplinary measures which contrasted with time-honored but cruel or indifferent practices. The difficulty with instinct psychology, as applied to education, however, lay in its conception of human nature as constituted of rigidly predetermined drives to action. This severely limited the influence of the educator. The new psychology does not rob original nature of its impulsive character, but it points out that this original energy is undifferentiated and general in character and consequently it derives its structure and its form from the formative influences of home and school. That is to say, home and school and community give content and shape to the so-called instinctive drives.

Take, for example, the "instinct" of anger. Only in the most general way can we describe its causes and its manifestations. But when concretely exemplified in the habitual responses of a child it becomes a profitable source of diagnosis as a preliminary to educative treatment. A child, we will say, has tantrums when his wishes are blocked. We no longer are satisfied to say with Hall that we have before us a manifestation of a primitive type of behavior, a healthy exhibition of a savage's disposition, a stage in child development which is inevitable and which must be given opportunity for expression in order to lay the basis for healthy growth. On the contrary, we look for an explanation of the peculiar character his anger takes in his present surroundings, and our findings determine our treatment. Perhaps the child has discovered that this way of behaving is an effective means for securing what has been denied him. If so, we shall be careful in the future not to reward such actions. Or, again, it may be that these tantrums come

when the child is fatigued and that his schedule is a too strenuous one. If so, we can cure by means of preventative medicine. Still again, the tantrums may be excellent although exaggerated imitations of adult behavior which the child constantly witnesses in the home. This is good cause for taking ourselves in hand. In each case, the explanation for a particular instinctive anger manifestation is found in a scrutiny of the environment; and its method of control lies in a manipulation of the circumstances which play upon a marvelously sensitive organism.

Since tendencies to act are unique combinations of inner forces and outer conditions, it follows, that interests are at once inner drives to action and reflections of a child's environment. Consequently, interests are more than starting points in education. They are trends of behavior to be encouraged and nourished or to be discouraged and supplemented. They are, moreover, end results, desirable outcomes in the way of ideals and habits. Since the child literally is his interests, and all education eventuates as character building, the educator is primarily concerned with the development and the creation of interests. The test of disciplinary and teaching methods, of the curriculum, of school and classroom organization is found in the interests fostered and originated and established as "going concerns."

In a later chapter we shall revert to this point and we shall then indicate its bearing upon the teacher's assignment and the direction of study. For the present we shall confine its implications more specifically to the organization of the curriculum.

We refer to the fact that in selecting curricular materials we cannot follow exclusively either psychology or sociology; but the two must intimately interrelate. Early schools concerned themselves almost exclusively with the facts

or the powers which should be useful when children become adults.[1] Rousseau and Hall, when strictly interpreted, represent reactions against this view. They took psychology for their guide. Hence it was only incidentally that their educative materials were designed to develop the child's insight into social life. It was Rousseau's purpose to educate Émile apart from what we would insist today are normal social contacts, until the boy should have completed the formative period of growth. Hall's plan was somewhat similar. Inasmuch as the child, as Hall believed, recapitulates the cultural development of the race, emphasis should fall in each stage of the individual's development upon living according to the peculiarities of this stage. Consequently, for Hall and Rousseau, it is only in the later stages of development that a child can identify himself with present social life.

The view we are advocating insists that both psychology and social ideals must function in the selection of the subject matter of education. It insists that these two criteria are so intimately connected that neither one can be used safely without the other. It holds that a child's equipment of interests and abilities are an inseparable composite of nurture and nature. Consequently, while we must rely upon a most searching diagnosis of a child's abilities at each stage of his growth, we must utilize this diagnosis for no fatalistic ends. It holds also that an adequate diagnosis of a child's present needs is possible only when the educator possesses a social vision. His aims and ideals will determine what needs and possibilities for future growth he will discover in the child, as well as the relative importance to be

[1] It is true that in the course of time adult conditions changed and tradition perpetuated elements in the curriculum which no longer served adult needs. However, it was *utility* which originally introduced these materials, and what reason later could not justify, rationalization defended!

ascribed to them. If he takes the *status quo* for granted, he will select one type of curricular material. If he conceives society to be in a process of constant change, he will endow with unusual importance those traits of character and personality which enable the child to adjust himself to changing conditions; and he will select school experiences with reference to their usefulness in the development of such traits.

The application of our principle thus requires both psychological insight and social philosophy. The psychological insight enables us to profit from the fact that the needs and the capacities and the interests which a child reveals are outgrowths of a constantly expanding and deepening relation with the world in which he lives. These relations are manifold: physical, social, moral, economic, civic, etc. Social philosophy, on the other hand, enables parents and teachers to organize children's living relations so that they take on a progressive expansion of meanings.

This point of view has direct bearing upon the "values" which school subjects or parts of a subject are supposed to possess. In one sense we may say that the subject content one selects for his pupils to study is of less importance than the purposes for which he selects this content and the way in which he introduces his pupils to it. The purpose of subject matter is to interpret present life, and to increase progressively the child's ability to control and to organize and to understand his immediate environment. But it is frequently overlooked that this control and interpretation may follow as well from one type of material as from another.

Take, for example, the controversy over the use of ancient and modern materials of study. The objection to traditional curricular materials lay in the fact that they created a gap between school and life. This gap is not bridged merely by

substituting contemporary materials for old. It is bridged only by centering upon the knowledge and the skills and the powers which school experiences can develop. When these become the objectives it will be found that both the present and the past have an indispensable function to perform.

May we illustrate? In two different schools two different plans are followed. In the one, a primary grade concentrates upon a study of primitive life. It correlates its various activities (reading, number work, handicraft, story, song, dramatics, etc.) upon reproducing and entering into an understanding of the essential conditions of primitive life. In so doing, however, the teacher takes advantage of the fact that primitive society presents in simplified form many of the basic conditions of coöperative living. From a consideration of the ways in which primitive man lived the children are led to understand something of the ways in which basic problems in a more complex civilization are solved. The concentration upon primitive life thus serves as a means for securing an intelligent appreciation of present-day living.

In the second school the teacher suggests to the pupils that they construct in miniature a section of a modern city, perhaps the one in which they are living. Streets are made, buildings constructed, sewers provided for, the main lines of traffic laid out, parks, etc., planned. In the process of this work the causes for a city's growth are discussed, the needs of people who live in a modern city are faced as thoroughly as the age of the pupils will permit, and, in general, an effort is made to utilize the project for the purpose of aiding children to secure an insight into principles of human relationships of which they were hitherto ignorant.

Who will say, in these two instances, that one body of subject matter is more important than the other? In each

case the emphasis is placed upon gaining an insight into certain essential principles of life and consequently the content is justified. Which material is of greater value, is doubtless relative to teacher and pupil and circumstance.

We may further illustrate the union of the psychological and the sociological by reference to recent courses of study in home economics. When these courses were first introduced into the schools they were defended almost exclusively upon grounds of adult values. It was pointed out that under present social and economic conditions large numbers of girls were securing no training at home for intelligent home making and in many instances the training received was actually a handicap. Consequently, schools were urged to instruct girls in those principles of home economics which they should need when they set up housekeeping for themselves. This purpose dominated the selection of the materials for the courses of study. The eye of the teacher was predominantly upon womanhood and not upon girlhood. Inadequate as the early courses were, they undoubtedly strove, according to their best lights, to conform to what Professor Bobbitt lays down as one of his guiding principles and assumptions when he states: "The practical arts training of women should seek to develop those abilities of every kind which are needed for the proper management of one's home." [1]

If one turns to a progressive course of study in home economics today, he will discover a different emphasis. While the eye of the teacher is still upon the proper management of the home when the pupil has attained maturity, it is realized that these objectives are best achieved by concentrating upon the present activities which girls now perform

[1] *How to Make a Curriculum*, Houghton Mifflin Company, 1924, p. 215.

in the home. In Denver, for example, the course of study committee attempted to ascertain first "the present activities of junior and senior high school girls and second to ascertain the activities of their parents who are co-workers on a higher level." The objectives of home economics education in Denver are thus said to be, "an outgrowth of what girls *are* doing in the home and what adults believe they *should do*. . . . The objectives for home economics education, accepted by the home economics committee, were derived from the combined investigations of the activities of pupils and the opinions of their parents. The conclusion was reached that the main function of home economics education was to contribute to worthy home membership." [1]

But it is *present* worthy home membership that is emphasized. Consequently, when studying the relation of food and health, attention centers upon breakfast, lunch, etc., "in relation to the health of a growing boy or girl." The aim of a study of "home problems" is said to be, "to further develop the girl's interest in her home, its function, its organization; to give her ideas and ideals as a basis for worthy home membership by helping her to participate more effectively in the life of her own home." And the study of clothing is organized with reference to the problems of dress, etc., which concern girls of the age enrolled in the course.

In thus defining adult outcomes rather generally, and concentrating upon a rich development of the girl's present life in the home, the Denver course of study plans wisely. If today is lived with a fullness of meaning, tomorrow is well provided for.

[1] Course of Study Monographs, Number Twelve, *Home Economics*, Junior High School, Public Schools, Denver, Colorado, p. 11.

Much the same point of view is now finding expression in regard to preparation for civic life. Early attempts at student participation in school government led to the formation of student government associations modeled in the image of national, state, or city governments. Since the structure of these organizations bore no relation to the actual conditions of student life and needs, they accomplished little more than to familiarize pupils with the general outlines of governmental machinery. Today effective self-government organizations take their character from the peculiar conditions and needs of the school; and by training pupils to meet in a responsible fashion the actual problems of school living, they develop those qualities of mind and heart which will function on a different level, in later life, with concerns appropriate to that life. It is realized, in short, that in so far as a child meets the problems of childhood in ways appropriate to that stage of development, we can rest assured that he is laying a sound foundation for healthy adulthood.

Our conception of learning as an activity carries with it also a changed point of view regarding the relation of subject matter to method. Under the Lockian conception of learning it is possible to separate *what* is learned from the *method* of learning. That is, subject matter is conceived of as information existing on its own account, without reference to any particular purpose of selection, and method is considered to be a general process independent of any particular and concrete application. This distinction between the subject matter of learning and the way the mind operates in learning was given further emphasis by the Herbartians when they put forth a "valid" method of teaching based upon what was supposed to be a general method of learning. This distinction between subject

matter and method rests, however, upon a passive conception of learning. Learning as an active process involves an intimate identification of the *what* and the *how*.

The result is an emphasis upon what Professor Counts calls procedure values [1] which was absent in early teaching. Subjects of study, such as history, science, mathematics, language, and the like, are now being organized for teaching purposes in terms of definite pupil activities; and these pupil activities are specifically designed to develop methods of thinking, habits of procedure, peculiar to these subjects and essential for independent progress in them. This requires that a teacher's assignment of work for his pupils be made with reference not merely to the knowledge they may thereby acquire but likewise with reference to the working tools they will forge for future efforts. History, science, mathematics, language, etc., are thus viewed as methods of thinking into which pupils must grow and in which information and method intimately interrelate in such a way that pupils acquire both the knowledge and the habits which will enable them more effectively to control reality.

In Chapter III we have illustrated some of the consequences of this point of view.[2] We shall return to them again when we discuss more specifically the technique of teaching. At this point we wish to illustrate a special application of this identity of content and method to the field of moral instruction.

In the early schools, both secondary and elementary, the moral development of pupils was cared for primarily through direct religious and moral instruction. Brown

[1] *Cf.* Chapman and Counts, *Principles of Education*, Houghton Mifflin Company, 1924, p. 396.

[2] See particularly the treatment of new tendencies in curriculum organization and the construction of courses of study.

says of the colonial schools: "The subject matter of instruction in this domain was the catechism and reports of the sermons which the pupils were required to hear on Sundays and special occasions. Instruction in manners was immediately practical. In the early Quaker scheme of education there was much insistence on imparting a knowledge of the laws of the land." [1] There was little realization that the life within the school might be organized so as to originate and develop desirable qualities. On the contrary, acceptable conduct was sought for, through penalizing bad behavior. Thus the code of regulations for the grammar school connected with William and Mary College provided:

"Special care likewise must be taken for their Morals, that none of the Scholars presume to tell a Lie, or Curse or Swear, or to take or do any Thing obscene, or quarrel and Fight, or play at Cards or Dice, or set in to Drinking, or do anything else that is contrary to good Manners. And that all such Faults may be much the more easily detected, the Master shall choose some of the most trusty Scholars both for Public and Clandestine Observators, to give him an account of all such Transgressions, and according to the degree of heynousness of the Crime, let the Discipline be used without Respect of Persons." [2]

This negative method of providing for proper habits and this positive provision for developing character through specific instruction persisted in our schools until quite recently. An examination of high school curricula will show that Butler's *Analogy* and Paley's *Evidences of Christianity* were studied well down to 1890. Moreover, the recent efforts to introduce direct moral instruction or

[1] *The Making of Our Middle Schools*, Longmans, Green and Co., 1914, p. 135.
[2] *Ibid.*, p. 138.

to set aside certain portions of the school day for religious instruction in our schools is a resort to traditional methods. These efforts now, as formerly, are based upon the assumption that if children are required to read the Bible, or to receive instruction in certain basic religious and moral conceptions, their characters will thereby be disciplined and strengthened. Consequently, we find in many schools that religious and moral instruction is introduced as regular classwork without any attempt to organize pupil activities in classroom or school so that ideals may find channels to action or that ideals may be generated out of genuinely problematic situations. Indeed it is not uncommon, in such cases, for school and community to afford ample illustrations of ways in which the ideals held up for veneration in the classroom are denied in practice.

There are at least two dangers in this situation. In the one case pupils may give lip service to moral standards which they regard as impracticable in actual behavior and in the other they may develop a skeptical or cynical attitude toward moral idealism.

A more discerning method of providing for moral instruction and training is found in those progressive schools which seek to organize school life both within and without the classroom so that it will provide opportunities for children to participate vitally in a variety of experiences. Out of such manifold activities comes the necessity for choices and decisions and the assumption of responsibilities and duties. When the crises, which under such circumstances must of necessity arise, are utilized as occasions for determining what moral values are involved, and problems are settled in terms of the values thus discovered, specific activities take on general implications previously

unnoted and ideals are given a specific application before unrealized.[1]

In a school known to the writer, student dancing was subjected to rather severe criticism and the faculty was requested by the Parent-Teacher Association to take some action that would result in a greater degree of control over the behavior of students at school parties. The principal of the school met the situation by inviting the Parent-Teacher Association and the Student Council to appoint a joint committee, which should recommend a policy to be followed. The representatives of the two groups expressed their views frankly and made earnest efforts to reach a common ground of agreement. The result was a modification of views previously held by both students and parents. The conference ended with the decision that the Student Council should earnestly consider the problem of student behavior at school parties, that it should devise other rules and regulations and other means for enforcing these decisions. Since the Student Council consisted of representatives of each class in the school, there was thus carried back to class meetings a problem of vital importance to all. For days arguments regarding standards of dancing were heatedly indulged in. A number of students and teachers took occasion, however, to show that there was involved in the question more than a matter of individual conduct. They pointed out that here was a specific instance of the general problem, the relation of the individual to the group. In a number of classrooms this general question received prolonged discussion and led to many far-reaching conclusions. The immediate issue

[1] For an excellent discussion of school activities, which may be used for moral training, and treatment of moral values in school subjects, *cf.* Henry Neumann's *Education for Moral Growth*, D. Appleton and Co., 1923, Chapters XI, XIII.

was thus given a wide context. The outcome in this particular case was the adoption of certain regulations which represented a high level of student opinion and the organization of student representatives to enforce the standards agreed upon. Thus were specific actions enlightened by ideals and ideals translated into practice.

There remains to be mentioned one more conclusion which follows from the doctrine that learning is an active affair. It is that the school is charged with a responsibility for more than the intellectual development of the child.

The old psychology not only separated the mental from the physical, but it conceived of the mind as divided into three relatively independent parts: the reason, the will, and the emotions. Popular speech and everyday thinking still tend to retain these distinctions and schoolroom method, in so far as it represses physical activity, is still influenced by methods which developed under the reign of the older psychology.

Rousseau was one of the first to break away from this view when he insisted that, "To learn to think we must therefore exercise our limbs, our senses, and our bodily organs which are the tools of the intellect." [1] This priority of the physical likewise influenced Pestalozzi and became particularly prominent in Froebel's doctrine of education through self-activity.

The instinct psychology should have delivered the final blow to the ancient separation of the mental and the physical, since an instinct is considered to be at once a way of acting, a way of feeling, and a way of thinking. Take, for example, McDougall's definition of an instinct. It is "an inherited or innate psycho-physical disposition

[1] By permission from *Émile*. By J. J. Rousseau [Everyman's Library Edition], p. 90, published by E. P. Dutton and Co.

which determines its possessor to perceive, and to pay attention to objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or at least to experience an impulse to action." [1]

When Thorndike broke instincts up into preformed bonds this identity of thought and feeling and action was still preserved. The preformed bonds render an individual attentive to some objects rather than to others and favorably disposed to respond along predetermined mental, emotional, and physical lines. While it is difficult to determine whether for Thorndike a "bond" is a mental state or a neural connection or, which is probably a safe guess, an ill-defined and unexplained combination of the two, there is no doubt that for him thinking is an activity rather than something apart from action.

This implies that for modern psychologists the distinction between thought and action is one of degree and not of kind; a difference that is explained quite largely by the parts of the organism primarily concerned in the activity. This same identity is maintained by Dewey, as a representative of the pragmatist point of view, and by Watson, who adopts an extreme behaviorist explanation of conduct. In *Human Nature and Conduct*, Dewey contends that child life begins with impulses that "are highly flexible starting points for activities which are diversified according to the ways in which they are used." [2] And again, "Habit means special sensitiveness or accessibility to certain classes of stimuli, standing predilections and

[1] *An Introduction to Social Psychology*, John W. Luce and Co., 1918, p. 30.

[2] *Human Nature and Conduct*, Henry Holt and Co., 1922, p. 95.

aversions, rather than bare recurrence of specific acts. It means will." [1]

Watson and the behaviorists generally, discard the conception of the psychical altogether and identify thinking with language activity. However, for them, language includes more than is conventionally supposed. It involves more than the mere activity of the talking apparatus; for this activity assumes the representative function which the psychic has hitherto performed. That is to say, a word is not only an action of the larynx and the associated muscles of the throat and the chest, etc., which have become "conditioned" or associated with other movements; it substitutes as well for events outside the organism and it represents them in their absence.

Our purpose here is neither to approve or disapprove of this identification of thinking with talking, but merely to call attention to the fact that what the behaviorist calls thinking is an activity intimately associated and identified with other widespread bodily activities. Thus Watson in his chapter on "Do We Always Think in Words?" [2] describes the simultaneous development of the verbal, the visceral and the manual habits. "Possibly it is more accurate to say," he states, "that verbal, manual, and laryngeal activities become organized together as parts of the total habit system we form around each object and situation in the world we live in." And, again, "every complex bodily response then must involve manual, verbal, and visceral organizations."

It is clear, then, that however badly the different schools

[1] *Ibid.*, p. 42. See also Dewey's discussion of ideas, *e.g.*, the idea of standing correctly and what it involves, in Sec. II of *Human Nature and Conduct.*

[2] *Behaviorism*, The Peoples Institute Publishing Co. (now W. W. Norton Co., Inc.), 1925, Ch. XI.

of psychology may quarrel over some matters, they agree in the view that the intellect cannot be educated in isolation; and that physical activity and emotional elements are vital factors in growth. The school has begun in some degree to recognize the importance of physical activity and freedom of movement in early education; but only the merest beginnings have been made in organizing school experiences with reference to their bearing upon the emotional life of the child. We still speak vaguely of the "spirit and the atmosphere" of the school, but in our preschools and our primary departments alone have we analyzed out the factors which give substance to this spirit and atmosphere. Fortunately the mental hygiene movement is making us constructively more sensitive to the personality factors to which schoolroom conditions, the personality of the teacher, and the organization of subject matter and method bring forth.

How significant a part our emotional development plays in our lives is forcibly stated by Dr. Frankwood E. Williams, Medical Adviser of the National Committee on Mental Hygiene, in an article on "The Need for Emotional Control through Education." [1] He writes:

"Assuming that intellectual training is not an end in itself, but merely a means to an end, and that the end which justifies all our work—yours as teacher, mine as physician—is the increase of human happiness and efficiency, not narrowly industrial efficiency, but skill in meeting personal problems of whatever nature, then I would assert that the narrowness of our present efforts cannot bring about the thing desired. If it were within my power, I would grant you for the moment the realization of every ideal in physical and intellectual training you have in mind and are striving for. For the instant, let us assume that all is accomplished. I will grant you still more. Not

[1] *Educational Review*, Vol. 65, pp. 40–44 (Jan., 1923). Published by Doubleday, Page and Co., Garden City, N. Y.

only are all your ideals this moment realized, but what is of greater importance, experience has shown that these ideals were wisely conceived—they have accomplished not only all that you believed they would, but even more. Indeed, the millennium in education is now here: students developed physically to a degree of perfection scarce dreamed of are instructed by skillfully trained teachers, using scientifically developed methods, so that the pupils not only receive but absorb and assimilate a quantity of intellectual pabulum that is astonishing. As we would expect, all this has brought about improvement in many directions. And yet the world is no whit happier, and individual efficiency, in the larger sense, is no whit greater; for happiness and efficiency are not essentially dependent either upon physical health or intellectual development. The most perfect physical specimen of manhood or womanhood, who at the same time is an intellectual giant, has no greater assurance of happiness, except in a very narrow sense, than you or I. These are largely truisms, and yet we seem so frequently to forget them. In the world's struggle out of darkness, it has been the ladder of intellect that has been used, and so concentrated has been our attention on this means of escape and so zealous and energy-consuming have been our efforts to repair old rungs and to add new ones that the very thing for which we started building is forgotten.

"We pride ourselves that our lives are controlled by our intellects—thus as humans do we differ from the animals. Unlike the animals, when faced with a difficult problem we gather together our bits of information and apply cold reason to the formation of our judgment. Although each of us occasionally may wish that he had a little more 'brains' to apply in making a judgment, we are quite sure that it is the 'brains' we have that we apply. But we largely fool ourselves. If we will ground our pride, I think we will find that all too often our decisions are quite largely made before our intellects come very fully into play, and that our intellectual processes perform the function largely of finding reasons to justify the already made decision. In other words, our decision has been made upon an emotional basis rather than upon an intellectual one. The control and direction of our lives lie here, and what we each need is not alone more 'brains' but a larger conscious control of what 'brains' we have. If intellect controlled our destinies, most of the great problems of the day could be very soon settled, but, as we know all too well, intellect in its re-

lation to these problems is largely used for balancing, countering, and compromising conflicting emotions. We know, also, quite well that this is equally true in the problems of our individual lives. The application of 'the dry light of reason' alone would soon resolve most of our problems, but this dry light has a limited opportunity; for few, if any, of the fundamental and controlling interests of our lives and the problems that arise from them are alone intellectual.

"Educational systems have not taken much note of this, for they have not outgrown the early slogan—train the intellect and school the will that they may rule over the 'baser animal parts.' The emotional problems of our own lives and some of the more explosive emotional problems of our pupils have not permitted us wholly to ignore the situation; but we have been inclined to forget it as much as possible, to minimize its importance, to call for more and more intellect to put out the fires, to invoke a mysterious will, or to assume a fatalistic attitude toward the whole thing. None of this is justified. Emotional problems are not unimportant; they are fundamental. They are not to be solved by intellect, in the narrow sense; will, whatever that is, if it is a thing apart, is a bulwark of straw. Fatalism here is what it is elsewhere, an admission of ignorance. As men have always feared, we now fear most and assume a fatalistic attitude toward that about which we know least. Intellect is no longer feared, as it once was; the will has always been a moral agent; but we fear the emotions, always a 'poor relation' and from a line of which we are not very proud, as they surge through us, coming and going largely unbidden, whence and whither we know not, but always to our confusion. Such fear is not justified; the whence and whither of emotions are not unchartable.

"May I put the matter in a little different way? We are a group of intellectually trained men and women, and each of us has been more or less successful in the practical application of our training. We are a group of comparatively stable individuals. None, and least of all do we ourselves, consider that there is anything mentally wrong with us. And yet there is not one of us but has his psychic scars. There is probably not one of us but would like to be more efficient, more forceful; would like to see his problems more clearly; to make his work more sharp-cut and direct; to keep to his plan with less distraction; to maintain a better perspective; to gain a closer coöperation with others; to be more successful in presenting his point of view to col-

leagues; to win greater confidence; to have a larger faith in his own integrity. All sorts of reasons we assign for our failures and mostly they are intellectual. When it comes down to it, we simply have not the brains. It does not seem to occur to us that we may not have the full use of the brains we have. I question if it is the quantity or quality of our intellects that hinders us. I am inclined to think it is our emotions we stumble over, our prejudices, our antagonisms, our strong likes and dislikes that pitch us into judgments that we must later find reasons for defending; our habits of thought and stereotyped methods of reacting; our undercurrent of cynicism perhaps (in spite of the fact that we thoroughly dislike cynicism); or our too constant and ill-founded optimism; or our false pessimism (false, because we do not intend to be pessimistic, and yet we seem to react pessimistically before we know it); our too great placidity, perhaps; or our touchy irritability; our surprising intolerance when we pride ourselves on breadth of view; our astonishing lack of generosity when we wish to be generous; our disconcerting tendency towards disingenuousness when we wish to be frank; the little intellectual dishonesties we slip into almost unaware when we believe such things beneath contempt. Herein lie our defeats, our unhappinesses, and our inefficacies."

This being true, it is clearly necessary to organize teaching procedure with reference to the supreme need for developing well-integrated personalities. Schools are charged with the healthy development of the child's total nature. They cannot remain satisfied with methods of teaching which emphasize pupil passivity or which seek to train the intellect in isolation from those other "parts" of human nature with which after all it is organically identified.

We thus see that the conception of learning as an activity controlled and directed both from within and without leads to educational methods which contrast with the early precepts of teaching. It places in the foreground an appeal to the genuine interests of children as starting points for instruction, and it defines the outcomes of education in terms of interests, *i.e.*, dynamic ideals and habits. It

recognizes that curricular materials cannot center exclusively upon adult values, that they must be organized rather with reference to the findings of both psychology and sociology. It no longer conceives of subject matter and method as separate, but urges that each school subject be organized and taught with an eye to its content and procedure values. And, finally, by identifying what was traditionally thought of as intellect, feeling, and will, it seeks to organize life within the school so that it will serve as an active agent in the development of integrated personalities.

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CHAPTER X

THE SCHOOL A TRAINING GROUND FOR CITIZENSHIP

We have thus far contrasted the school of today with early American education in two respects. In the first place we have shown that while these schools made the mastery of a textbook the central factor in education the school of today concentrates primarily upon character building. Secondly, we have contrasted the present view of the learning process as an active affair, a unique interplay between organism and environment, with the wax tablet conception of the mind and its attendant theory of learning as a process in which experience writes upon the mind what it wills. We now turn to a third comparison, that between the present-day conception of the function and purpose of the school and that dominant when the recitation and group method of teaching developed.

We refer to the individualistic and selective character of the early American school and the present democratic ideal of the school as an instrument dedicated to the task of training boys and girls for an intelligent participation in a democratic life.

This comparison holds good with reference to both elementary and secondary schools.

From the beginning of colonization there grew up in this country three different conceptions of the nature and purpose of elementary schools. In New England, where settlements were made by religious congregations, church and state were at first identical organizations. Here the

recognized need that each individual receive an education sufficient to enable him to read and interpret the Bible for himself, led to the passage of laws for the establishment of schools and the insuring of some degree of education for all children. In the middle colonies, however, and in Pennsylvania particularly, religious denominations of varying shades dwelt side by side; hence the burden of educating the young seemed to be more clearly a parental and a denominational obligation. Consequently, the church and not the state provided for education. In the South and in such colonies as New York, Maryland, Delaware, and New Jersey, where Episcopal influence dominated, the English charity school was transplanted. Accordingly, in these communities the well-to-do provided privately for the education of their young, and the charity school, supported largely by the church and only meagerly by the state, afforded some educational advantages to the children of the poor.

The progress of education in the United States has, in no small degree, resulted from a conflict between these three conceptions of the school. Only gradually was the pauper idea eliminated; and still more slowly was a public control of education substituted for a denominational lien upon school funds and a religious dictation of school policies. The winning of this battle on the part of the public schools was but one phase of the democratic movement in the first half of the nineteenth century. Roughly speaking, we may say it was consummated in the period of Jacksonian democracy.

A number of forces contributed to the outcome. In New York City, for example, the competition between religious and philanthropic organizations for the lion's share in state funds led, in 1842, to the establishment of a nonsectarian

Board of Education and the legal provision that no portion of the school funds were to be given to any school in which "any religious or sectarian doctrine or tenet shall be taught, inculcated, or practiced." [1] In New England a steady increase of immigration broke up the original religious homogeneity and, consequently, the schools which were originally placed under the control of civil authorities as a matter of convenience, were further secularized as a matter of principle. New England influence in the West, aided and abetted by grants of public lands for the support of schools, led to the creation of school funds and to the establishment of school facilities supported entirely at public expense. This western development gave force to the demands of the friends of public education in the East, who were organized into propaganda associations and were devoted to the task of securing favorable legislation and public grants for public education from the state legislatures. In New York and the middle colonies associations of workingmen added their voices to the demands of these agencies. A typical meeting of workingmen held in Philadelphia, in 1829, declared:

"No system of education, which a freeman can accept, has yet been established for the poor; whilst thousands of dollars of the public money have been appropriated for building colleges and academies for the rich." [2]

This representative quotation indicates a further and a conclusive tendency that operated favorably toward the establishment of free schools. It was the influence of a widened suffrage and the abandonment of property qualifi-

[1] *Cf.* Parker, S. C., *History of Modern Elementary Education*, Ginn and Co., 1912, p. 246.

[2] Quoted by Cubberley, Ellwood P., *Public Education in the United States*, Houghton Mifflin Company, 1919, p. 126.

cations for voting and the holding of office. This extension of political democracy gave clarity to the nonsectarian and civic character of education.

It is one thing, however, to provide facilities for the education of all children, and another to make certain that every one shares in the opportunities thus afforded. The elimination of rate bills, and the passage of laws forbidding child labor and requiring the attendance of children at school were further necessary steps. While Massachusetts passed its first compulsory attendance law in 1852, it is not until the period following the Civil War that we have established the general principle that parents must insure to their children the privileges of an education. For a time, these laws insisted only upon school attendance for a portion of the school year and they contemplated no more than universal school attendance during the period of elementary schooling. Of recent years attendance has come to be required for the entire school term and compulsory education is being extended into the secondary school period. Moreover, the rapid growth of immigration and the industrial revolution, with its transformation of our social and economic life, has led to an increasing emphasis upon the importance of the school as an agency for the preparation of future participation in this life.

This transformation has greatly complicated the function of the school. It is now asked to perform duties previously unthought of. The civic life for which it originally prepared was individualistic and the school necessarily reflected this individualism in its organization and its methods of teaching. The social and economic life of today demands a capacity for coöperation and mutual understanding formerly unknown, and the school in its

operation endeavors to take account of these facts. Consequently, its curriculum is being organized to serve new social ends and its methods of teaching, its extra-curricular activities, its organization of school government, all are taking their character from new social purposes. While it still affords capable and willing children an opportunity to improve their status in life, this original function is being subordinated to a broader social vision. It seeks to prepare all children, the handicapped and the dull as well as the capable, the indifferent as well as the eager and the ambitious, for a worthy participation in a democratic citizenship. The child is no longer asked to adjust himself to a Procrustean bed. The school now aims to fit itself to the child.

This changed conception of the school's task is particularly striking in the case of the secondary school. While the secondary school was profoundly influenced by the forces we have enumerated in the previous paragraphs, it retained nevertheless its selective character until the reorganization period which began roughly in the 1890's. In the course of this reorganization, which is still underway, the social and economic forces that have led to a reinterpretation of the purpose of our public schools have centered conspicuously upon the transformation of the structure and character of the secondary school. For this reason it may be profitable to survey the broad lines of the changed purposes and functions of the school as these purposes and functions have manifested themselves in secondary education.

In a most significant paper written some twenty years ago,[1] John Dewey pointed out the reasons for the delay in the reorganization of secondary education. The second-

[1] "Current Problems in Education," *School Review*, Vol. X: 13–28.

ary schools, he said, have always been conservative. Throughout the centuries their mission has been to perpetuate a cultural tradition. Consequently they have been selective in character and devoted exclusively to pupils intellectually competent to hand on this tradition. In Europe today, in spite of the new education movement, they still remain primarily designed for the intellectually élite.[1]

Take for example our own secondary school. It began with the colonial grammar school. This institution was viewed from the first as one of the community's most vital concerns. In New England, where, as we have seen, religious communities were identical with the governmental units, it took on something of a public character, but its conservative function was quite similar in all the colonies.

When the citizens of "Roxburie" gathered together in 1645 to consider the needs of education, they resolved:

"Whereas, the inhabitants of Roxburie, in consideration of their religious care of posteritie, have taken into consideration how necessarie the education of theire children in Literature will be to fitt them for public service, both in Churche and Commonwealthe, in succeeding ages. They therefore unanimously have consented and agreed to erect a free schoole in the said Towne of Roxburie, and to allow Twenty pounds per annum to the School-Master, to bee raised out of the Messuages and part of the Lands of the severall donors (Inhabitants of said Towne) in severall proportions as hereafter followeth under theire handes." [2]

There is something heroic about these early attempts

[1] What follows in this chapter is taken with some alterations and with some additions from an article by the author on "Present Tendencies in Secondary Education," which appeared in *Educational Administration and Supervision*, XI: 433–446 (October, 1925).

[2] Brown, E. E., *The Making of Our Middle Schools*, Longmans, Green and Co., 1914, pp. 40–41.

to provide first of all for the things of the spirit. Struggling as they were to secure a foothold upon a huge and an unexplored continent, the early New Englanders pledged themselves by law to establish a grammar school in every community of one hundred householders. But who were to attend this school for which all householders assumed such a direct responsibility? Those who were intellectually able to master the classics and who by virtue of this mastery were later to direct the affairs of the state and the church!

With the development of colonial trade and commerce, a mercantile class arose to challenge the propriety of maintaining a school which cultivated only a narrowly selected group. As the direction of affairs gradually slipped from the hands of the clergy into the hands of the merchant and his spokesman, the lawyer, there developed a demand for a new type of educational preparation for life. The changed conditions of American life likewise stimulated new intellectual interests. As a people we manifested an adolescent's expansion of outlook and an eager desire to know many things. It was preëminently the era of the intellectual jack-of-all-trades. The well-informed man knew something about everything. Consequently there was a demand for an education which should equip one for effective performance in practical affairs and also introduce a boy and an occasional girl to a liberal education. The academy undertook to accomplish these purposes, and it served them well for roughly one hundred years.

But even the academy was not intended for all children. While it was frequently heavily subsidized by the public, it was primarily a private institution and only attended by those who could pay the tuition and could qualify intellectually. It was distinctly a middle-class institution,

and while the high school came out of the democratic movement of the 1820's and 1830's, primarily in response to the demand that the people provide at general expense the advantages which the academies offered to the few, it did not abandon its selective character. Throughout the reports of the national committees which sought a reorganization of secondary education as late as the 1890's, one encounters the question: "What education is best for the boy or girl who is financially and intellectually competent to do the work of the secondary school?" Here are certain bodies of subject matter—as they saw it—from which a selection must be made. What is the best possible selection for those who are sufficiently fortunate and sufficiently capable to reach up to this level?

Charles W. Eliot, who headed the demand in 1890 for an examination of the secondary school, was speaking primarily from the standpoint of the relation between secondary schools and colleges. He pointed out, what still is true, that American students not only spend a longer period of time in secondary schools and colleges but that they are less well educated in the end than their European brothers. His efforts and those of his associates were therefore directed toward economy of time in education and a more effective organization of the curriculum.

There were forces operating upon the school, however, which necessitated a more thoroughgoing reconstruction than this. We refer to the phenomenal change in the character of the student body and the social conditions which this reflected. Thus in 1890 there were 2,526 high schools reporting to the United States Bureau of Education. This number had grown to 14,056 schools in 1922 and probably exceeds 17,000 today. The increase in enrollment is equally startling. In 1890 there were 202,963

pupils enrolled in public secondary schools. In 1923 this number was 3,434,525, or an increase of 1,750 per cent.[1]

Now this means more than a uniform growth in numbers. It means that our student bodies have changed like Joseph's coat into a garment of many colors. The secondary school no longer serves the future ministers and lawyers as did the grammar school, nor the future leaders of commerce and industry as did the academy and the early high school. The present student body is drawn from every class in the community with the diversity of backgrounds which this implies; and, what is of equal importance, the boys and girls who make up this student body are destined for widely different life goals. It may be possible to retain the old conception of training for leadership, but if so, we shall have to revise the implications of that phrase.

The complexity of the task confronting the school becomes more evident when we relate what has been said of increased enrollment to the new responsibilities which the facts of immigration have thrust upon the school. There was a time when we could quite safely leave to the home and the ordinary community associations the problem of Americanization. The home was familiar with the best American traditions and the affairs of government were sufficiently self-evident and simple for one to identify himself easily with the requirements of American citizenship. With the influx of a foreign population into our cities and rural districts this is no longer true, and frequently it is the immigrant child who by virtue of a school experience gives to his parents their only understanding of American institutions. Thus it becomes one of the most

[1] *Statistical Summary of Education*, 1923–1924. Bulletin, 1926, No. 19, Bureau of Education, p. 2; also Table 6, p. 6.

important functions of the school to introduce the integrating influences which will lead to that common basis of knowledge and understanding so important for democratic citizenship.

Nor is this a simple task. It involves more than information; and it obviously calls for something more than a blind acceptance of authority. We should remember today, as never before, that America has been from its earliest beginnings a house of refuge for nonconformists. Indeed, one could very well argue that it has been built by nonconformists. From the time Roger Williams escaped from Salem and founded Rhode Island, and Anne Hutchinson moved from Massachusetts to Newport, the discontented have gone westward. There they have started new communities in which they, and those of similar opinion, could live in peace during that brief interval preceding new disagreements and further colonization. This ingenious method of fostering and conserving independence of view is no longer possible since our open lands have disappeared. From now on the nonconformist must abide with us and both he and we must adjust ourselves accordingly. This requires for one thing that the school develop intellectual habits which prompt one who disagrees with the majority to survey all sides of a question and consciously to seek for data which will round out his views. It requires that his classmates in turn cultivate an openness of mind which will insure him a fair hearing. Neither he nor they should apply blinds to the eyes. The public schools can become advocates for no one-group opinion. Their obligation is rather to provide both information and training which will guarantee a tolerant attitude toward those with whom one differs, and an ability to arrive independently at well-digested conclusions. On the other hand, to secure that emotional

and unconscious identification and loyalty to the group of which one is a part, it becomes necessary to engage in common activities, rites, and ceremonies. To make us all members of one body requires that we have something in common in addition to knowledge and book information. Consequently the task of Americanization in the secondary and elementary schools involves more than a mere problem of a course of study, although it calls for that. It is as well a problem of interrelating classroom work with school activities and all of these with the issues of contemporary American life.

An intelligent identification of one's self with American political and social traditions, important as it may be, is only one phase of adequate preparation for citizenship. The adequate performance of one's economic functions is equally important. The increased complexity of our present industrial society thrusts a new duty upon the school. The time is past when a parent can follow the example of Benjamin Franklin's father and lead his son from shop to shop with a view to aiding him in the selection of a vocation. Nor can we send our children from home and school trusting that they will flip-flop into their appropriate vocations like the loaded capsules on a cootie board. Present-day industrial and professional life is so extremely specialized and complicated that regular channels of information and guidance must be established both to minimize failure or unhappy choice and to give positive direction to the abilities and capacities of the young. In the early stages of our realization of this fact there were optimists who believed the school could provide vocational counselors, wise men, who, by virtue of their ability to appraise the possibilities resident in a boy or girl, and their information regarding the needs of economic society, could do

placement work. On the whole, educators at present sense their opportunity and their obligation in a more comprehensive manner. They are organizing the curriculum of the junior high school in such a way as to give boys and girls a multitude of contacts which will assist them in testing out and discovering abilities which the differentiated curricula of the senior high schools will further develop and mature. The essential point is, that vocational guidance is now being realized through educational guidance, and among the educational objectives of the school is that of preparation for a vocation, in the broadest meaning of the term.

A complete analysis of the conditions which call for a reorganization of the secondary school would call for the enumeration of many things which we cannot consider here. There is one very important change, however, which cannot be ignored because an appreciation of its significance is leading to far-reaching effects. We refer to the educational importance of social activities. Until recently the secondary school frowned upon the play spirit as well as upon play. In consequence, social activities, like athletics, were kept apart from education. Gradually the play spirit has moved from the kindergarten up through the grades and is now securing a respectable standing within the high school. It is securing this because we are realizing better than we once did the importance of a unified personality. The play spirit, put to work, has wonderful possibilities; and by incorporating play in the curriculum we have an opportunity to give greater educational significance to play itself.

Particularly is this true in the way of character building. The social activities of the secondary school are of peculiar significance today. In the first place they are a means of socialization and afford opportunities for developing an appreciation and understanding between boys and girls

of different racial, social, and economic backgrounds. Secondly they make possible a more careful building of personal and social standards.

There was a time when adults and youth shared their recreational activities and participated together in social affairs. Not so very long ago, the home was a center of social life in which children and grown-ups mutually engaged. The standards of social conduct were influenced by this intimate association and the ideals which actuated young people were directly influenced by their elders. This state of affairs is rapidly passing. Even the chaperon is acquiring only a prehistoric interest. Recreational and social activities are taking place along horizontal age lines and, in consequence, the standards which a boy or a girl adopts take their character from this new grouping. The ideals which operate in their lives are of their own making and an adult who does not "belong" to the set should not be surprised that his council and his admonitions go unheeded.

Now, there is nothing alarming about these facts if they are properly understood and intelligently acted upon. Their bearing upon school life, however, is most far-reaching. They require that the school recognize the social and ethical importance of actions which determine fundamentally the tone and quality of one's nature. It means that the school must foster student activities and incorporate them as a part of the regular school curriculum. It calls for an encouragement and development of student participation in school government of such a character as to stimulate student thought and student control over student conduct. Still further, once this is begun, it implies a transformation of traditional classroom procedure so that there comes about a vital interconnection of teaching with the lives of the pupils outside the classroom.

To summarize, these are some of the outstanding influences that are bringing about a new definition of the function and purpose of the secondary school: (1) a demand for a reorganization of the subject matter traditionally taught in the upper grades of the elementary school and the early years of high school; (2) the changing character of the student body by the accretion of social and economic classes formerly not represented in the secondary school and new racial and national elements resulting from immigration; (3) intimately associated with these changes in the character of the student body is the recognition of the increased complexity of economic life and the resulting necessity of conscious and deliberate efforts to guide boys and girls carefully into a variegated industrial and professional organization; (4) the transformation in the character and function of the home and the nature of the present social and recreational life of young people which calls for an intelligent socialization of the work of the school.

As we have already indicated, the forces that are bringing about a reconstruction of secondary education have been operative also in the elementary schools. The greater conservatism of the secondary schools has served merely to delay and therefore to concentrate these necessary changes into a shorter period of time. Accordingly we may conclude with a brief mention of one or two implications of these changes which contrast with our former educational procedure.

In the first place the school of today realizes more keenly than formerly the necessity of surrounding the pupil with those influences which adequately equip him for a responsible democratic citizenship. It is seen that schools autocratically organized and administered do not provide the proper medium for these ends. The psychological importance of

understanding through actual participation applies directly to the character and spirit of the school. So long as teachers perform duties which are defined entirely by others and pupils in turn merely submit to an external authority, they are in no way developing a sense of responsible citizenship. The chief duty of a citizen in an autocratic state may be to obey, but in a democracy there is required a personal and a positive identification of the self with law and custom. It is a realization of these facts which lie back of the widespread movement toward pupil participation in school government.

Pupil participation in school affairs is not only slowly transforming the character of the school outside the classroom; it is revolutionizing as well the traditional methods within the classroom. When educators turn their attention from the acquisition of subject matter as an end in itself and watch instead the development of pupil attitudes and dispositions and habits of procedure, the whole function of the teacher and the textbook is seen in a new perspective. The learning of lessons now becomes a means or an instrument for realizing more fundamental ends. What this involves, however, in methods of teaching we shall develop more fully in later chapters.

Not only do these new concerns of the school call for new methods of teaching and a transformed school organization; they call as well for an education which abandons the compartmental procedure of the past in which culture and vocation avoid more than a speaking acquaintance. As culture in a democracy cannot remain the exclusive possession of a privileged class but must distribute itself more or less generally throughout the commonwealth, so each individual, like an artist, must relate culture to his major interests and utilize it to give breadth and wealth of mean-

ing to his life's work. By thus making culture a way of life and not merely a preoccupation of a leisure moment, it is possible to cultivate one's vocational interest in such a manner that he will appreciate its ever radiating influences in the lives of other people. And once the school senses its obligation and its opportunity to perform this function in the lives of boys and girls, it will establish itself actually as an instrument for the building of a beautiful order of society the equal of which eye hath not seen and ear hath not heard.

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PART III

REACTIONS TO TRADITIONAL TEACHING METHOD

CHAPTER XI

SOME EARLY CRITICISMS OF GROUP INSTRUCTION

It will be recalled that in Chapter II we surveyed three outstanding conceptions of education which were more or less taken for granted at the time the recitation system and uniform group instruction developed. In Part II we have considered present-day principles which contrast with these early views. We did this for the purpose of raising the question: Does a method of teaching which is based essentially upon educational principles no longer accepted satisfy the requirements of today?

We do not wish to give the impression, however, that the uniform group recitation system developed without adverse criticism. Indeed its outstanding characteristic, uniform pupil progress, was subjected to severe condemnation. In the 1870's, particularly, when the graded system had firmly established itself in the village and city schools, its shortcomings were clearly pointed out by its most zealous advocates. Thus in 1874 W. T. Harris, who was then Superintendent of Schools at St. Louis and had introduced graded classification in his schools, read a paper at the National Education Association on the question, "The Early Withdrawal of Pupils from School: Its Causes

and Its Remedies." In this paper he pointed out both the advantages and disadvantages of the graded system and described the ingenious system of promotions adopted in St. Louis to offset its evils. Regarding the advantages of the graded or, as it was called, the classified system, Harris stated:

"The unclassified school has disappeared from our cities and large villages, but it still exists in the country districts very generally. Whenever the sizes of the schools have been such as to admit of it, a system of classification has been introduced, and the immediate consequences have been: (a) great increase in the length of recitation; (b) far more thoroughness in the discussion of the lesson, sifting the different statements and probing the meaning of the same; (c) great stimulation of the mental activity of the pupil through trial and competition with other members of his class." [1]

Superintendent Harris continues to say, however:

"So many good things have a tendency to hide some very serious defects. It is this very system, however, that is so organized as to prove the very greatest of all causes for the early withdrawal from school. . . .

"The tendency of all classification is to unite pupils of widely different attainments. Especially is this found in small schools. The consequence is that the lesson is too short for some and too long for others. The best pupils in the class are not tried to the full extent of their ability; they consequently lose in some degree the discipline they should gain. The poorest pupils of the class are strained to the utmost. They are dragged, as it were, over the ground without having time to digest it as they should. This develops the result that the overworked pupils are frequently discouraged and drop out of the class, and likely enough out of school altogether. . . . All the pupils in the grade must be in the same degree of advancement at about the same time. The result is that the school is classified in such a way that there are ten classes, separated by intervals of from five to ten months' work. Then promotion is made from one grade to another

[1] *Addresses and Proceedings of the National Education Association*, 1874, p. 266.

at set times, annually or semiannually. All who pass the examination commence the work of the next grade; all who do not continue until the next examination in the work of the grade through which they have just passed. The effect of this is frightful as a cause of early withdrawal from school." [1]

An equally searching criticism of the method under discussion was made by E. E. White in 1872 at a meeting of the National Education Association. The topic under discussion was, "Several Problems in Graded School Management." White agreed with Harris that graded class instruction was an improvement over former procedure, and, like Harris, he directed his attentions to the invention of devices for offsetting the evils necessarily attending this type of instruction. In his paper White discussed the problem of the graded school from the standpoint of its effect upon the pupil and the teacher. The evil consequences as regards the pupils he described as follows:

"The pupils in graded schools, as we have seen, are divided into classes, and to secure necessary economy these classes are made as large as practicable. The fewer the number of pupils embraced in the system, the fewer must be the number of classes, and, as a consequence the greater must be the inequality in the attainments and capacity of the members of each class, and hence the greater the difficulty of the problem now under consideration." [2]

White proceeded to point out the dilemma which this situation forces upon a teacher. If he adapts his instruction to his best pupils, "the great majority are hurried over their studies, and receive a superficial and imperfect training." On the other hand, if he adapts his instruction to "the minimum capacity of the class," the great majority are retarded and "not only sacrifice time and opportunity, but

[1] *Ibid.*, p. 267.

[2] *Addresses and Proceedings of the National Education Association*, 1872, p. 255.

fall into careless and indolent habits of study." The only solution of the difficulty, White stated, is "for the teacher to adapt his class work to the medium or average capacity of his pupils, with such attention to the more and the less advanced pupils as may meet, to some extent, their wants." But if he does this, he encounters what White termed the demands of the "per cent" system. In order that the class as a whole may attain a high average, "it is necessary that the lowest members of it reach a good standard, and this results in the holding back of the bright and industrious pupils until by iteration and reiteration the dull and indolent may be brought to the required standard." This in turn has the evil consequence of wasting time; which, however, is not always evident to the teacher because "the brightest pupils, being chained to the dullest, soon learn to keep step, scarcely showing their ability to advance more rapidly."

It is difficult to find a keener appreciation of the limitations of group instruction than this. The remainder of White's address contains observations on the graded system which, unfortunately, we cannot repeat here. We cannot refrain, however, from reproducing his observations regarding the effects of class teaching upon the professional attitude of teachers. He is referring to the fact that the graded system calls for a course of study that prescribes definitely the ground to be covered in the respective subjects. We omit his constructive suggestions for supervising teachers under these conditions and reproduce only his portrayal of prevailing practice.

"The adoption of a definite course of study with subdivisions corresponding to the number of classes, all following each other in natural order, necessitates the mastery of each of the successive portions as a preparation for the next higher. When the pupils in the lower

grades or classes are sufficiently numerous to occupy several schoolrooms under different teachers, the progress and attainments of the several sections of each grade or class must be sufficiently uniform to enable them to come together in the upper grades or classes. This necessitates a degree of uniformity of instruction, and it is just here that *the mechanism of the graded system touches its very life*, as the experience of too many of the larger cities plainly shows. To secure this uniformity of instruction the course is mapped out in minute details, and the time to be devoted to each part, the order in which the steps are to be taken, and even the methods of teaching, are definitely and authoritatively prescribed. As a result the teacher is not free to teach according to his 'conscience and power,' but his high office is degraded to the grinding of prescribed grists, in prescribed quantities, and with prescribed fineness—to the turning of the crank of a revolving mechanism.

"The supervising principal of a public school in a large city once said to the speaker: 'It is idle to ask my teachers to read professional works. They follow the prescribed course of study, and look to me for their methods. Their ambition is to do their work precisely as I direct, and they do this work without inquiring whether my methods are correct or incorrect. It is enough that I prescribe them.' It is possible that this may be an extreme case, but it illustrates the tendency of the system, when administered as a mechanism." [1]

We shall resist the temptation to engage further in an historical discussion of the criticism of the group recitation method. Suffice it to say that the records of our educational associations reveal an appreciation of its inadequacies. It was nevertheless realized that the graded system and the recitation method of teaching were far superior to the method of individual instruction which formerly prevailed. Since our main concern is an estimate of the place of the recitation in educational procedure of today, we shall do better to examine the new methods of teaching employed today. Their existence is evidence of a widespread dissatisfaction with traditional teaching and an examination of them should

[1] *Ibid.*, p. 259.

reveal not only recognized limitations in traditional procedure, but concrete proposals for reform.

Let us accordingly survey the most outstanding of those methods with this twofold purpose in mind.

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CHAPTER XII

SUPERVISED STUDY

In his monumental work on psychology, William James calls attention to the fact that until about 1860 philosophical and psychological speculation proceeded upon the assumption that all men's minds are alike. "Until very recent years," he writes, "it was supposed by all the philosophers that there was a typical human mind which all individual minds were like, and that propositions of universal validity could be laid down about such faculties as 'the Imagination.' Lately, however, a mass of revelations have poured in, which make us see how false a view like this is. There are imaginations, not 'Imagination,' and they must be studied in detail.

"The first breaker of ground in this direction was Fechner in 1860." [1]

While Fechner thus laid the basis for a study of individual differences in 1860, and Galton and others later further investigated phenomena of individual differences, the applications of this work to educational method came slowly.

A return to individual instruction and the supervised study movement represented the first attempts to adjust school work to the recognized facts of individual differences. The pioneers here were undoubtedly P. W. Search and E. L. Thorndike. In 1888 Search introduced individual instruction in the public schools of Pueblo, Colorado, and through his book *The Ideal School* called attention of edu-

[1] *Principles of Psychology*, Vol. II, pp. 49–50, Henry Holt and Co., 1890.

cators to the advantages in individual instruction. Edward L. Thorndike,[1] in the field of educational psychology, produced and stimulated studies bearing upon individual differences in capacities and abilities.

In the next chapter we shall discuss the revival of individual instruction. In this chapter we shall turn our attention first to the supervised study movement.

Supervised study, as a method of teaching, has been prominent in educational discussions for the past twenty years or more. Its widespread adoption of late years results from both psychological and sociological factors of which we may speak briefly.

The psychological influences are the outgrowth of the psychology of individual differences and of research into the nature of the learning process. Just as soon as learning came to be studied intensively, it was seen to be much more of a complicated matter than previously supposed. Observation, memory, attention, reasoning, etc., were discovered to be not faculties of a mind which operate independently of each other, but complicated ways of behaving which call for appropriate techniques and materials and whose fruits vary with the control and the guidance exercised. The obvious conclusion followed that the simple method of having a child recite a lesson which had previously been assigned is to concentrate upon the least important phase of learning.

The limitations in the recitation system were revealed the moment the general term *study* was analyzed into specific habits of study. It was seen that habits of study were both general, or those common to all subjects, and technical

[1] *Cf. Educational Psychology*, first published in 1903, and his little book *Individuality*, Houghton Mifflin Company, 1911; also *Principles of Teaching*, A. G. Seiler, 1906.

or those specifically related to some one subject. For example, such habits as beginning work promptly, acquiring an effective and economical rate of reading, developing the ability to secure at one time a general point of view, from a chapter, and at another time to analyze out carefully a chapter's contents, to maintain sustained attention and concentrated effort, to ask significant and pertinent questions, are habits of study that lead to productive work in every subject of study. On the other hand, a subject such as mathematics calls perhaps for these same habits, but as well for habits more peculiarly related to mathematics. Some of these are:

"(1) The habit of making a mental summary of what is given and what is found; (2) the habit of getting and holding in mind the conditions of the problem in general terms—to avoid the extra effort and confusion resulting from remembering involved verbal statements and long numbers; (3) the habit of deciding, before making the computation, what to do with a partial answer when obtained; (4) the habit of deciding the kind of units in which the answer will be expressed; (5) the habit of deciding whether the answer seems reasonable before going through the actual proof; (6) the habit of proving the answer (in algebra, in the original problem instead of in the equation)." [1]

As Breslich very well says: "The teaching of each of these habits presents several problems. It is important to determine whether the pupils have these and other habits. The solving of all of the problems every day is not proof of good habits." [2]

These are but random illustrations of significant habits of study which the observations and investigations of

[1] Quoted from Breslich, E. R., "Supervised Study in Mathematics," *School Review*, XXXI, p. 740 (Dec., 1923). Breslich in turn refers to an article by Ralph E. Carter, "Teaching a Study Habit," *School Review*, XXIX (November and December, 1921), pp. 695–706; 761–775.

[2] *Ibid.*, p. 740.

children's study have revealed to be of utmost importance, but for which traditional teaching does not provide. It has been shown that pupils' unguided learning results in tremendous waste and inefficiency, if not in the acquisition of positively injurious habits.

In the light of these facts many teachers began some years ago to look to the reorganization of their class work as a means for developing both general habits of work and those skills and procedures peculiarly related to progress in their own subjects. They began to insist that the most important part of a child's intellectual growth consists in the methods of work he grows into while preparing his lessons. Consequently, they contended, the school must assume a responsibility for insuring to the child the acquisition of economical and intelligent methods of work.

To these psychological influences which led conscientious teachers to concern themselves about the study habits of children, should be added certain sociological factors, which in turn were outgrowths of the changed character of the school noted in Chapter X.

Just as long as schools judged their efficiency by the proportion of children eliminated, and teachers considered thoroughness to be identical with assigning hard lessons, little attention was given to the causes for pupils' failures. On the other hand, when compulsory attendance laws required children to attend school and the school's task was conceived to be the preparation of all children up to the full measure of their abilities for an intelligent participation in a democratic life, there was introduced a new criterion for judging teaching success. The way pupils reacted to teaching method and subject matter now became supremely important and the causes for failure and difficulty, as well as the conditions leading to successful

results, took on a new importance. Moreover, the multicolored character of the student body, socially, intellectually, and racially, stimulated sociological studies of the school population as a necessary preliminary for intelligent teaching and vital school administration.

Typical of the studies made in this direction was one conducted by William C. Reavis on the relation between habits of study and a pupil's home surroundings.

"The investigation covered the home conditions of three hundred and ninety-three children. Data about these homes were gathered and graded according to the following points: educational interest on the part of the parents, means to provide adequate food, clothing, medical attention, books, papers, magazines, and entertainment, moral atmosphere that would encourage honesty, earnest effort, regard for the rights of others, and a due measure of self-respect. The homes were divided into three equal tertiles and designated as Rank I, II, and III. It was found that 75 per cent of Rank II, and 15.3 per cent of Rank III have habits of study of the first class; 9.7 per cent of Rank I, 48.2 per cent of Rank II, and 40.7 per cent of Rank III have habits of study of the second class; and 5.3 per cent of Rank I, 19.4 per cent of Rank II, and 44 per cent of Rank III have habits of study of the third class. The investigation shows that there is a marked correlation between the rank of the home environment and the habits of study of the pupil, and points out that the possible origin of many of the habits and attitudes of school children is in the home." [1]

In an article on "The Laboratory Method and High-School Efficiency," written by Dr. Otis W. Caldwell for the March, 1913, number of *Popular Science Monthly*, certain reasons for the deleterious influence of home conditions upon pupils' study habits were given.

[1] "Factors that Determine the Habits of Study of Grade Pupils," *Elementary School Teacher*, XII, pp. 71–81. Quoted by E. R. Breslich in *Thirteenth Yearbook*, National Society for Study of Education, Public School Publishing Co., Bloomington, Ill., 1914, Part I, p. 47.

"The conditions for home study present all the possible variations, but most home study must be done under discursive influences—a little study, a little conversation about irrelevant matter, an intermittent discontinuance for small household duties, a prolonged intermission for recreation, with the half-consciousness of wrong doing because of unfinished and overhanging lessons, even interrupted sleep because of a number of unfinished tasks, a final effort to secure categorically such facts regarding the assignment as are essential to enable the pupil to meet the teacher, a consciousness of incompleteness of preparation and a hope that, if called upon at all, the call may come for the facts that are in the pupil's meager store. Often the pupils' own initiative to home study must be supplemented by commands or entreaties from parents, and sometimes parents must do pupils' work for them, under penalty of family chagrin due to impending failure of the child. In most cases poor habits of study result from purported home study, though some pupils of good ability and strong individuality may do quite effective or superior work through home study. The habit of dawdling, waste of time in getting to work, wondering whether the work must really be done, whether a lexicon, cyclopedia, or parental answer to questions may not be found, leaves an entirely improper attitude toward real study. Sham work, at first as a makeshift, later becomes the only kind of which some individuals are capable."

A further factor served to stress the obligation of the school for supervising pupils' study, particularly in the high school. This was the discovery that pupils have extremely obscure notions of what is required of them in the preparation of assigned lessons. An incident in the University of Chicago High School, quoted by Breslich, illustrates this point:

"That in beginning classes of the high school suggestions given with the lesson are not sufficient to enable the pupil to do his work, and that the pupil's difficulty in studying his lesson is much greater than is usually assumed, is illustrated by the following occurrence: The parents of a pupil just beginning first-year mathematics in the University of Chicago High School complained to the teacher that

the daughter came home day after day with home work assigned, but with no idea how to do it. The girl had told them it was the teacher's custom to assign problems with no suggestions. Feeling that this procedure was unreasonable, the parents spent the evening hours working the problems and explaining them to the child. When they were unable themselves to do the work they called on a ministerial friend living in the next block, who was good in mathematics and kind enough to help. Finally the parents came to the teacher and complained: 'Sometimes even all of us cannot do the work you assign; how do you expect her to do it alone?' The teacher was surprised to learn that, after all the careful preparation in the classroom, a pupil, no matter how slow, should not even know that suggestions were given. Asked whether any suggestions for the next day's lesson were given, the girl said she knew of none. To satisfy the parents, the teacher took a quarter of an hour to go over the preparation of the lesson with the parents and daughter exactly as had been done in the classroom. It was found that the girl remembered it all, but failed to see how it would help her to study her lesson. It was now the parents' turn to be surprised. They went away feeling that the child, not the teacher, was at fault. But this experience shows clearly that the teachers' method of instruction did not accomplish the desired results, for at any rate this pupil had failed to make the connection between suggestions and assignment.

"To ascertain to what extent the other members of the class might have this difficulty, the following experiment was tried. In assigning the next lesson, suggestions were given with unusual care. The pupils were then told that the next fifteen minutes would be given to studying the lesson, and that they should begin the assigned home work immediately. The experiment showed at once that the pupils did not appreciate the value of limited time, for all were slow in beginning work. It took some of them the whole fifteen minutes to go through the technique of getting started. Several evidently were not in the habit of working alone, for they looked about helplessly and simply imitated the others. However, these same pupils had come to the classroom daily with the lessons well prepared. Very little was accomplished in the fifteen minutes, indicating that the pupils very probably wasted much time in studying their assignments of home work. Although the class had been in the high school only a short time, the teacher had been presupposing a habit of study which did

not exist. Much of the difficulty is due to lack of knowledge as to how to study and how to use time to advantage. The remedy in this case is, of course, definite instruction as to methods of study." [1]

Statistics of elimination from high schools and records of the large proportions of pupils who failed in their classes, seemed to give additional strength to the argument that the teacher should assume direct responsibility for the study habits of his pupils. It was argued that in study ability as elsewhere a stitch in time will save nine.

All this evidence accumulated in the schools favorable to a supervised study program reveals, of course, a decided reaction against exclusive reliance upon the recitation system. Nor were the arguments for a change restricted to school people. Among laymen also the suspicion grew that reciting a lesson is the least important aspect of schooling. An incident which came to be widely circulated was published in the *Ladies' Home Journal* for January, 1913, under the caption "The Widow Who Was Dead Right."

A widow complained as follows to a superintendent of schools:

"I have four little girls attending your schools. I am up at five o'clock in the morning to get them off to school and to get myself off to work. It is six o'clock in the evening when I reach home again, pretty well worn out, and after we have had dinner and have tidied up the house a bit it is eight o'clock. Then, tired as I am, I sit down and teach the little girls the lessons your teachers will hear them say over on the following day. Now, if it is all the same to you, it would be a great help and favor to me if you will have your teachers teach the lessons during the day, and then all I would have to do at night would be to hear them say them over." [2]

As one goes through the literature on supervised study

[1] *Ibid.*, pp. 44–45.
[2] *Ibid.*, p. 43.

he is impressed with the Utopian hopes of the originators of this method of teaching. Thus it was pointed out that supervised study would more readily bring needy cases to the attention of teachers, and thus provide better for individual differences; that it would foster more intimate and personal relations between teacher and pupil; that it would stimulate a pupil's interest in study because it enables him to study when he is in the mood and when his assignment is clearly in mind; that it would promote greater initiative and independence on the part of pupils; that it would develop better and more appropriate habits of procedure; that it would lead to more effective learning by virtue of the fact that in providing for study to follow presentation it properly distributes periods of learning.

Before we inquire how truly the results of supervised study square with these anticipations, we must clear the term itself from ambiguity. What, in other words, do we mean by supervised study?

In an investigation made in 1925, Mr. William Arthur Brownell [1] lists some fourteen different types of technique, each of which is designated as supervised study. This quite obviously involves confusion, and in discussing supervised study it is necessary for one to indicate clearly what procedure is meant. As a method of teaching, the term is perhaps applied best to that arrangement in which the class period is divided into three phases: review and recitation, assignment of the succeeding lesson, and study. Frequently, but not always, the period is lengthened. Of late, evidently to differentiate this method from other procedures into which it has tended to develop, it has been spoken of as the "divided period." This is a most ap-

[1] *A Study of Supervised Study*, Bulletin No. 26, 1925, Bureau of Educational Research, University of Illinois, Urbana, Illinois.]

propriate term and represents the method to which we here refer.

The divided period, as we have already indicated, provides for at least three different phases. To illustrate these divisions we shall quote from an article by Superintendent W. W. Brown which describes its use in the junior and senior high schools of Janesville, Wisconsin. The article is entitled "Making Profitable Use of the Divided Period." He writes:

"A class period of sixty minutes should be divided approximately as follows: Twenty minutes for the testing and review of the previous day's work through recitation, discussion, examination, etc.; fifteen minutes for the assignment of the new problem; twenty-five minutes for the working out of the characteristic difficulties of the assignment. There should be nothing hard or fast about the time distribution. At some point in the course it might be desirable to spend an entire period or even a number of periods in working on a single problem. The suggested distribution is simply a guide. If, however, the teacher seldom approximates such a distribution of time, it would probably be indicative of poor planning, and the class meeting would be likely to become a sixty-minute recitation." [1]

There is no doubt but what the influences of supervised study have been more far-reaching then a mere statistical study can record. A fair appraisal of its importance should take account of its indirect effects as well as of its direct and immediate outcomes. Thus it has stimulated more careful diagnosis of learning difficulties and the development of appropriate methods of remedial instruction. It has emphasized the importance of carefully planned lessons and intelligent assignments. It has brought home to teachers the importance of viewing specific techniques, skills, and methods peculiar to each subject (as well as general habits of study) as integral parts of the subject

[1] *School Review*, Vol. 32, p. 699 (November, 1924).

one teaches. This is no small contribution and should offset some of the disappointments which follow the statistical measures of its direct and tangible results.

In the monograph on supervised study to which we have already referred, Mr. Brownell reviews the findings of investigations of the results of supervised study. These results are frequently negative in character, or, where gains are made after the adoption of supervised study, they are surprisingly small. One outcome seems to stand out conspicuously. Poor students do somewhat better under supervision and good students fare worse!

One of the most recent investigations of the results of supervised study, is that reported by B. F. White, Superintendent of Schools, Little River, Kansas.[1] Superintendent White studied the records of two groups of freshmen in the University of Kansas. One group came from thirty-two high schools organized under the supervised study plan, the other from thirty-two high schools not so organized. The study involved the records of 270 students, or, 135 in each group, these two groups being paired as regards sex, mental age, and chronological age. "All cases were from Class A high schools of approximately equally varying sizes, from towns with approximately equal total population."

"The marks made in each subject by each individual considered were copied from the official records of the registrar of the University of Kansas. The marks were weighted according to the plan of giving 5 points for each hour of A grade, 4 points for each hour of B, 3 points for each hour of C, 2 points for each hour of D, and 1 point for each hour of failure or incomplete work. The total number of points gained from all hours of work was then divided by the number of hours which

[1] "The Effect of Supervised Study in Kansas High Schools on Success in the University of Kansas," *School Review*, Vol. XXXV, pp. 55–58 (Jan., 1927).

the student had carried or attempted to carry. This gave each a weighted score of somewhere from 1 to 5, according to the kind of work done."

The results showed that the mean score of the supervised group was .09 higher than for the unsupervised group, which is not significant. Superintendent White is thus quite right in concluding:

"In the light of the facts revealed for the 270 cases here considered, we are justified in saying that the supervised study has only a very small advantage in meeting the demands made by the University of Kansas in the matter of marks. This difference, of course, applies only to a small percentage of the high-school students who have attended the University of Kansas; hence, one must be very careful in drawing any general conclusions. It is probably true that the better high-school students attend the University of Kansas. It also seems to be true from other studies that the poorer students benefit from supervised study more than do the better students. We are safe in making the statement, however, that, so far as the benefit of supervised study is concerned in the 270 cases studied, the advantage is so small that for this group alone reorganization of a school system to provide for supervised study would hardly be worth while."

One explanation for the general conclusion that supervised study benefits the poorer pupils and affects the superior pupils at best indifferently, is found in the prevalence of poorly trained teachers. Conventional teacher training courses in methods of teaching have not equipped teachers to diagnose and cure learning difficulties. They do not know how to supervise study and too frequently they interpret this as nothing more than to preserve order.

There is, however, another fundamental reason for the failure of supervised study. It does not, in practice, provide for individual differences in needs or in rates of working. The class period is divided arbitrarily into three parts and the assignment made is common to all pupils.

While the slow pupil can keep busy during the study period and profit from any assistance that is rendered him, the capable pupil, who is at the same time a rapid worker, must devise ways and means of keeping busy. The natural result is that he acquires wasteful and ineffective habits of work and frequently loses interest.

Thus supervised study which was originally designed to provide for individual differences actually perpetuates lock-step methods of procedure. The divided period turns out to be nearly as artificial and formal and as stereotyped as the original recitation. In actual operation it does not involve a reorganization of subject matter so that this relates any more concretely or directly to the out-of-school life of the child. There is no more conscious effort on the part of teachers to give significance to assignments so that these become to the pupil meaningful tasks with a definite sense of direction, rather than daily assignments each more or less on its own footing. Nor is there evident a deliberate effort to think of school work in terms of pupil activities designed to develop character traits, in contrast with the old point of view of ground-to-be-covered. Indeed, the only outstanding characteristic too frequently distinguishing supervised study from traditional procedure is the practice of having pupils study the advanced assignment under the eye of the teacher. And, as we have seen, this has accomplished little more at present than to equalize learning products. It has not provided for an appropriate development of genuine individual needs and abilities.

An appreciation of these limitations is resulting in a critical study of supervised study and an appraisal of what are as yet its unrealized possibilities. New methods are evolving which aim to preserve the advantages implicit

in the idea and to insure more directly their actualization. We shall refer later to some of these attempts.

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CHAPTER XIII

INDIVIDUAL INSTRUCTION: THE DALTON AND THE WINNETKA PLANS

As we observed in the last chapter, individual instruction and supervised study are two of the earliest attempts to remedy the difficulties which the psychology of individual differences revealed as inherent in the recitation. We also called attention to the fact that as early as 1888 P. W. Search introduced individual instruction into the high schools of Pueblo, Colorado. All home study and practically all recitations were abolished. The school day became a working period during which pupils mastered their assignments as rapidly as their differing abilities permitted.[1]

The results were startling. In a Latin class "During a given length of time the fastest pupil completed 140 chapters, the slowest only 40 chapters. One pupil completed 110 chapters, three completed 95, five completed 90, and one completed only 45." [2]

These wide divergencies in pupil progress suggest not merely the advantages of individual study, but as well the difficulties confronting a teacher who would assure himself that all of his pupils are working conscientiously. In a large public school each teacher is responsible for the progress of several classes with enrollments ranging from twenty-five pupils or less to thirty-five or more. It is not surprising,

[1] For a good discussion of the first adjustments of teaching to individual differences in high schools, *cf.* Parker, S. C., *Methods of Teaching in High Schools*, Ginn and Co., 1915, Ch. XV. Also, Search, P. W., *An Ideal School*, D Appleton and Co., 1901.

[2] Parker, S. C., *op. cit.*, p. 380.

therefore, that these early efforts broke, as they did, upon the rock of inadequate instruments for recording and checking pupil progress.

In 1912 and 1913 Frederick Burk, of the San Francisco State Normal School, concentrated upon the task of solving the administrative and educational problems involved in individual instruction. He realized that not only is it necessary to keep accurate records of individual progress, but also that the courses of study must be rewritten so as to permit pupils to advance with a minimum of teacher direction. Accordingly, he and his faculty began the publication of self-instruction bulletins in arithmetic, geography, grammar, history, language, and phonics. These self-instruction bulletins found their way all over the United States and into foreign countries "until a ruling of the California attorney general stopped their publication" [1] and effectively curtailed the development of this work.

It became necessary, therefore, for others to carry on the work so ably begun. Accordingly, Carleton Washburne, formerly associated with Frederick Burk, and Helen Parkhurst developed what are today the two outstanding and most distinctive examples of individual instruction.

While there are some elements in common in the plans sponsored by these two educators, their differences are far more significant, extending to what amounts to a difference in educational philosophy. For this reason we shall do well to examine each separately.

In her book, *Education on the Dalton Plan*, Miss Parkhurst refers to her associations with Dr. Montessori and with Frederick Burk and states that in 1918 (when she re-

[1] *Twenty-Fourth Yearbook*, National Society for the Study of Education, Public School Publishing Co., Bloomington, Ill., 1925. This yearbook contains an excellent account of Burk's system and other plans of individual instruction.

signed the charge of Dr. Montessori's interest in America) "I felt I had devoted sufficient study to the individual aspect of education. The school in its aspect of a human society then engrossed my energy." [1]

This statement indicates very well the twofold character of Miss Parkhurst's plan. It is designed to provide a means for individual progress in learning and it is also concerned with what she terms "Coöperation and Interaction of Group Life." It is in this second aspect as well as in a careful provision for budgeting a pupil's time that we find the chief contrasts with Mr. Washburne's scheme.

In the Dalton Plan the class group retains its organization, although each individual may progress at his own rate. Occasionally definite efforts are made to keep the pupils of a class within a safe range of variation. Thus in the South Philadelphia High School for Girls, groups are first segregated on the basis of ability and then allowed to progress individually. Miss Parkhurst's original plan provided for group conferences once a week. In many schools adopting the plan more numerous conferences are held, and in Miss Parkhurst's own school, provision is made so that teachers may meet groups of children whenever they consider such meetings essential. Frequently, assignments require definitely that pupils work together. Thus in the South Philadelphia High School for Girls a 12 B project in business letter writing reads:

"Has your father or brother any 'bad bills' he would like us to try to collect? Ask him to give us the necessary data. Form a small group of girls to talk over the problems presented in each case. Let each girl write the letters; then select the best, which will be mailed. Repeat the process, until you get results." [2]

[1] By permission from E. P. Dutton and Co.

[2] From Wilson, Lucy, *Educating for Responsibility*, 1927, p. 40. By permission of The Macmillan Company.

The following assignment in literature in Miss Parkhurst's school (planned to correlate with history and geography) likewise illustrates the emphasis occasionally placed upon group work.

CLASS SEVEN—Junior High School 1926–1927
1st Form 4th Contract Assignment

LITERATURE

When the white man first arrived in this country he found that the Indians living in different regions had very different habits and customs. These differences were due largely to the surroundings in which the Indians lived. For example, the Indians who lived in the Northeast, where there were many lakes and navigable streams, knew how to build very serviceable boats. In the northern parts of New England, New York, and in Canada, where the canoe (paper or white) birch grew, they covered these canoes with birch bark. Farther south they used elm bark or made dugouts. The Indians of the plains knew very little about boats. They used the round tubby 'bull boat' to ferry themselves and their belongings across the rivers when necessary. The Indians of the Southwest had no boats because they lived in a very dry area; but the Indians of the Northwest, living around the deep bays and protected coasts of British Columbia, were as skillful at boat-building as the tribes of the Northeast. But because the trees were much larger on those well-watered western slopes, the dugouts of the Northwest Indians were much bigger, often large enough to carry a small war party.

Boats of each kind mentioned above can be seen in the American Museum of Natural History.

In like manner the food, houses, clothing and customs varied between these different areas, and as these things varied, so did the oral literature of these people vary. Therefore it is necessary for us to understand something about the ways of the people in these different areas—these "cultural groups" as they were called—in order to understand their myths, legends, and traditions.

Our Problem this month will be to make an outline map of North America and on it to mark the areas of the different Indian tribes, and to show by drawings, how the tribes of each area lived—what

boats, weapons, food, art, etc., they produced. This map ought to be as beautiful and as interesting as the one you did of Asia last year.

Problem 1: The Drawing of the Map. The first people who get on this Assignment may go to Miss Hill and ask her if she will give them credit in Geography for helping to draw the big outline map of North America. We shall need only three or four, so that this Problem is the privilege of those who are the first to be on their 4th Assignment.

When you have Miss Hill's permission, go to the Art Laboratory, and Miss Seymour will tell you what to do.

Problem 2: Committee Work. The job of the different committees is to bring all necessary information about your subject to your draughtsman, so that all he has to do is to make his sketches and transfer them to the map. You can prepare a written report, or make sketches yourself, or tell him very exactly where he can find a picture of the thing he wants to draw. I advise the members of each committee to work together so that you do not do the same thing twice. The draughtsmen must make a sketch, present it to Mr. Welch for approval, and then transfer it to the map.

These are the Committees:

Food:	Judith, Roslyn, Dorothy, Peggy.
Clothing:	Jane Amberg, Alice, Jean, Edith.
Shelter:	Maxine, Madeline, Carol.
Transportation:	Bertrand, Moira, Rhonie.
Weapons & Crafts:	Rex, Joy, Julia, Murray.
Draughtsmen:	Nicol, Cleveland, Graeme, Rex, Joy.

References: For the Food Committee:

"Indians of the Plains," pp. 13, 17, 21–30.

"Indians of the Southwest," pp. 11, 13, 16, 22, 33, 38–40, 47, 53–54, 76–81, 147–151.

"Indians of the Northwest Coast," pp. 15, 16, 20, 36, 37–41, 46, 59–79.

"Indians of Manhattan Island," p. 9.

"Igloo Life," pp. 15–22.

For the Shelter Committee:

"Indians of the Plains," pp. 18, 31, 36–42, 55–65.
"Indians of the Southwest," pp. 13, 22 (see map, p. 15), 23–28, 68–76, 123–124, 134–146.
"Indians of the Northwest Coast," pp. 25–38.
"Indians of Manhattan Island," pp. 7–9.
"Igloo Life," pp. 7–14.

For the Clothing Committee:

"Indians of the Plains," pp. 31, 42–65.
"Indians of the Southwest," pp. 45–47, 54, 81–85, 127, 151–153.
"Indians of the Northwest Coast," pp. 79–84.
"Indians of Manhattan Island," pp. 5–7.
"Igloo Life," pp. 22–28, 37–38.
Also "Indian Costumes in the United States."

For the Transportation Committee:

"Indians of the Plains," pp. 18, 22, 31–35, 65–66.
"Indians of the Southwest," pp. 11, 12, 15.
"Indians of the Northwest Coast," pp. 15–19, 33–36, 44.
"Igloo Life," pp. 29–35, 41–44.
"Indians of Manhattan Island," pp. 9–10.

For the Weapons & Crafts Committee:

"Indians of the Plains," pp. 25–27, 82, 127–133.
"Indians of the Southwest," pp. 40–51; 90–91, 164–166.
"Indians of the Northwest Coast," pp. 35–59, 142–165, 76, 106–108.
"Indians of Manhattan Island." Look through from page 20 to page 48.

References for All Committees:

The Natural History Museum whenever you can go there.

Equivalents: If you do your part well—the reading, study of pictures, reports, if your draughtsman is satisfied with your information, and the map is well done—*this work counts 20 units.*

Those who did Problem 1 need do only 15 units' work on Problem 2.

The following assignment in Science, on the other hand, indicates how a pupil may progress more or less independently of others.

CLASS SEVEN—Junior High School 1926–1927
1st Form 4th Contract Assignment

SCIENCE

Having learned the important elements that make up Air we are now in a position to understand the relation of Air to Life. Remember that without Air, there would be no life of any kind upon the earth.

FIRST FIVE UNITS

AIR AND FIRE

At the conclusion of last month's work we considered the relation of air to fire. You will recall that we must have (1) something to burn (fuel), (2) air, (3) a kindling temperature, in order to have a fire.

Problem 1: Find out how fires may be extinguished.

Experiment: Make the model fire extinguisher as directed in Problem 9, p. 26—Van Buskirk & Smith. (Ask for help with the acid.) Use 1/2 inch rubber and glass tubing.

Review the other ways of putting out fires. Van Buskirk & Smith, pp. 34, 35.

AIR AND LIFE

The following experiments and references are given in order that you may understand clearly why all animals and plants need air.

Problem 2: How does exercise affect the rate of breathing? Van Buskirk & Smith—p. 38.

Problem 3: What is the temperature of the human body? Van Buskirk & Smith—p. 38.

Written Work: Problems 2 and 3. Be sure to answer the questions asked.

References: Van Buskirk & Smith—pp. 43–45.

Equivalents:
Problem 1.....2 units.
Problems 2 & 3.....1 unit each.
Reference.....1 unit.

SECOND FIVE UNITS

AIR AND LIFE (Continued)

Problem 1: Is "carbon dioxide" given off in breathing? Van Buskirk & Smith—p. 38.

Problem 2: Is "water vapor" given off in breathing? Van Buskirk & Smith—p. 38.

Problem 3: Do germinating seeds use oxygen and give off carbon dioxide? (Problem 6, p. 39, Van Buskirk & Smith.)

Note: After you have observed what happens to the burning splinter add a little lime water to the jar—cork it and shake. What happens to the lime water? What does this show?

Problem 4: To examine cells under the microscope. (Problem 8, p. 40, Van Buskirk & Smith.) Ask for my help. We shall use prepared slides showing animal cells.

Written Work: Problems 1, 2, 3.

Reference: Van Buskirk & Smith—pp. 45–49.

Equivalents: Each Problem.....1 unit.
Reference.....1 unit.

THIRD FIVE UNITS

AIR AND LIFE (Continued)

Problem 1: How does a fish breathe? Van Buskirk & Smith, p. 41.

Problem 2: How does a plant breathe? Van Buskirk & Smith, p. 41.

Problem 3: How does a human being breathe? Van Buskirk & Smith, p. 42.

Reference: Van Buskirk & Smith, pp. 49–53.

Written Work: Problems 1, 2, 3.

Discussion: On the references for the First, Second, and Third Five Units. (Why animals breathe.)

Equivalents: Problems 1, 2, 3.....1 unit each.
Reference.....1 unit.
Discussion.....1 unit.

FOURTH FIVE UNITS

AIR AND HEALTH

Problem 1: To learn the condition necessary for a change of air in ventilation. Experiment 7, p. 22, in Trafton, "Science of Home and Community."

Problem 2: To learn how temperature is measured. Problem 2, p. 55. Van Buskirk & Smith.

Problem 3: To find out the relative humidity of the Science Room. Read the directions in Problem 3, p. 56, Van Buskirk & Smith, and use the hydrometer on the wall for your readings.

Written Work: Problems 1, 2, 3.

Reference: Van Buskirk & Smith, pp. 64–68.

TEST: ON THE THIRD AND FOURTH ASSIGNMENTS.

Equivalents: Problems 1, 2, 3.....1 unit each.
Reference.....1 unit.
Test.....1 unit.

As can be seen from the assignment in literature just quoted, the work of pupils is outlined with considerable detail. These assignments are called "contracts" which the pupils engage to undertake. Careful directions are given so that pupils can proceed more or less independently. Indeed this is essential if the pupil is to advance, in Miss Parkhurst's words, "steadily, job by job, through the curriculum of his class. If in a school year of nine or ten months he only finishes eight jobs on account of absence or illness, he begins the ninth job in the following year. The clever child may, on the contrary, accomplish in one year the work mapped out to cover eighteen months. Often the slow, apparently less intelligent, child gains in rapidity, and in any case he builds well and soundly at his own natural rate." [1]

Provision for individual differences in working abilities follows from a further feature of the Dalton Plan: the abolition of the time schedule. Outside of the conference periods a pupil distributes his time as his peculiar needs

[1] By permission from *Education on the Dalton Plan*, p. 44, by Helen Parkhurst. Copyright by E. P. Dutton and Co.

and the necessities of the various contracts require. He may enter the science laboratory and work consistently and consecutively for the entire day, if that seems wise. He may thus complete the contracts on which he works most easily in a short period and have the time "saved" to devote to those subjects in which he is backward. Indeed, this he is encouraged to do not only by the class adviser who exercises some supervision and direction over him, but also by a regulation which prevents his undertaking the second month's contract in any one subject until all other subject contracts for the month are completed.

The abolition of the time schedule thus enables pupils to distribute their time in such a way that a weakness in one subject may be offset by devoting to it more than the normal amount of time. That is to say, if a pupil is weak in history and strong in science, he will presumably be able to complete the assigned work in science in less time than he requires for the history. He may, perhaps, complete his science assignment in less than normal time. The laboratory plan enables him to take the time saved in science and apply it to history. By thus concentrating a pupil's forces where they are most needed this plan makes it more nearly possible for him, than it was in the conventional school, to drive all subjects abreast, and to maintain a mastery level of performance at a normal rate of progress.

An efficient and economical direction of a pupil's energy toward the points of his greatest need is conditioned, however, upon a wise budgeting of time. Consequently the Dalton Plan aims particularly to train pupils in the ability to budget their time wisely. In this way it is hoped that responsibility will develop with freedom. As Miss Parkhurst states in this connection: "An unin-

structed pupil cannot wisely organize and budget time. All of a single grade get together with an 'Organization Adviser,' the same one, at the same time each morning. Pupils report their progress, make their individual time-tables for the day, and study the problem of how to reconcile any shortages in their unit scores. A pupil carrying five subjects has a 'work norm' of five units and should do five units each day. If a pupil fails to get this norm, perhaps when he is doing his most difficult subjects, he is taught to swing into an easier subject next day so that he can do more. This helps him to get ahead or to break even and thus reconcile any shortage." [1]

Individual progress and the careful budgeting of a pupil's time require also a careful checking and recording of work done. Frequent checks upon a pupil's progress are made by means of standardized tests and regular subject matter tests which teachers devise. Moreover, the pupil's record card and the class group record card, both of which are marked daily, record graphically a child's progress in each subject.

A distinctive feature of the Dalton Plan as operated in Miss Parkhurst's own school is the careful integration of the subjects which a child studies. All teachers cooperate in making out the assignments for pupils. While a teacher of English, for example, may outline tentatively his assignments for the year or for the month, these take their final form only after a conference with all other teachers. Actually, therefore, the assignments for the school are the joint product of all teachers working in unison. This insures the maximum of possible coöperation between teachers and coördination as between subjects. Thus a paper in history or science may serve as a

[1] *Twenty-Fourth Yearbook, op. cit.*, p. 91.

composition in English, or principles in mathematics may find application in other fields. Moreover, this plan removes the teacher from the lonely isolation of his own field and gives to him the stimulus which necessarily follows from the friendly interest and criticism of his peers.

Social relations are stimulated under the Dalton Plan in several ways. Instead of the usual grade room in which pupils doing identical work are segregated, the Dalton Plan provides subject laboratories, each laboratory being in charge of a subject specialist. In large schools such as the South Philadelphia High School for Girls it is necessary to restrict the laboratory to the use of pupils of roughly the same grade. In other schools, however, and in Miss Parkhurst's school, pupils of various grades use the laboratory at the same time. Miss Parkhurst herself urges such an organization in order that community living and mingling may be encouraged.[1] "During laboratory time, the pupils are encouraged to work together in grade groups according to the demand or through the medium of the assignment. If, for instance, a fourth-grade pupil entered a laboratory, while there, unless he was confronted with a special piece of work which could only be done by working alone, he must work in that part of the room set aside for his grade. This grouping encourages discussion and debate, and gives a line of direction to conversation which might be promiscuous if the pupils had nothing in common." [2] This working together tends also to develop teamwork and coöperation on the part of pupils who are members of the same group.

[1] For a suggested grouping of 1,250 pupils on the laboratory plan, *cf. Twenty-Fourth Yearbook*, National Society for the Study of Education, Part II, p. 90.

[2] *Ibid.*, p. 91.

The Children's University School has gone farther than other schools in extending the laboratory procedure to the various subjects of the curriculum. In this school, for example, not only have the regular academic subjects been put upon the laboratory plan, but also art, music, dramatics, and even physical education. In other schools, where the Dalton Plan is used as a tool for quite literally realizing the purpose of stimulating individual progress in the "regular subjects," the afternoons are devoted to social activities in the way of group projects, dramatic work, plays and games in the gymnasium and elsewhere, and are specifically intended to develop the social nature of the child.

These are the main outlines of the Dalton Plan. The Winnetka procedure differs in a number of essential respects. In the first place pupils in Winnetka are encouraged to go it absolutely alone. As we have seen, the Dalton Plan frequently provides for a class assignment. In some cases this assignment actually involves for its performance the coöperation of a number of pupils, or it may be a class project and thus necessitates a deliberate effort on the part of the teacher to keep pupils somewhat together. Moreover, pupils may work in small groups and thus consciously regulate one another's progress. In Winnetka, on the other hand, the assignments are completely individualized. Subjects are worked out in the form of tasks which the pupils must perform. Each task, or *goal*, as it is commonly called, is planned in such a way that pupils receive the necessary directions and instructions for proceeding alone. When a goal or a portion of it is completed, the pupil takes a self-administered test in order to determine whether he is ready to submit to the teacher's examination, which is the final criterion for

determining his mastery of one goal and his fitness to advance to the next task.

This procedure may be clearer if we illustrate it. We will take our illustration from the *Washburne Individual Arithmetic*, Book Seven, prepared by Superintendent Washburne and Marion Carswell.[1]

Pages 1 and 2 of this book contain the following instructions to the pupil:

TO THE PUPIL

"You can teach yourself with this book. You can correct all your own work. You can test yourself and find out whether you understand what you have been doing. When you make mistakes in your tests, you can tell just what kind of practice you need.

"The work is divided into steps. Each step has just one new thing to learn. At the beginning of some new steps there is an explanation. Always read this very carefully. Have your pencil in your hand and work each part of the examples that are worked for you in the explanation. Be sure you understand what you are doing—you can if you read carefully and do the work.

"At the beginning of each new step there are three examples all worked for you. Copy the examples, but not the work. Try to work the first one—while you are working it, look at the book if you need to. See whether your work is just like that in the book. Work the second one. Compare your work with the work in the book. See if you can work the third without any help from the book; then see if your work is right.

"Then do all the examples under the letter A. Work neatly—untidy work causes mistakes. When you have finished the A examples, turn to the answer page. See whether you have made any mistakes. If every one of your answers is right, you may skip the examples marked B and C and D and go right on to the next step. But if you have made even one mistake in A, go back and work the wrong example over to see where you made your mistake. Try to correct it yourself. If you have trouble, go back to the worked-out examples at the top of the page, or to the explanation, and see if you can find out what you have done wrong. Then do all of B. Again turn to the answer

[1] Copyright, 1927, by World Book Company.

page and correct your work. If you have made no mistakes this time, skip C and D and go right on to the next step. Do C if you have made any mistakes in B. If you still make mistakes in C, ask your teacher for help before you try D.

"Always be sure that you have one step mastered—that you can do it perfectly before you go on to the next.

"Ask your teacher or another child for help only if you cannot possibly master a step without help. But it is much better to get help than to go on to the next step without thoroughly understanding the step you are doing.

"If you master each step, the next will not be hard. When you come to tests, you will be able to do them with very little trouble. You will be able to use your arithmetic in solving real problems."

The work in arithmetic is organized on the basis of steps or goals. Thus step 1 in long division is introduced and presented in the following manner:

LONG DIVISION

Explanation for Step 1

When we divide by small numbers (like $6\overline{)197}$), we can do much of the work in our heads. But when our divisor is big (like $63\overline{)197}$), we have to write down our work.

Let us get ready for big divisors by writing down our work even when the divisor is small. Take: $3\overline{)18}$

First think "3 in 18?" Write 6 over the 8.

$$\begin{array}{r} 6 \\ 3\overline{)18} \end{array}$$

Now multiply 6×3. Write the answer under 18.

$$\begin{array}{r} 6 \\ 3\overline{)18} \\ 18 \end{array}$$

Draw a line under the last number, 18, and subtract.

18 from 18 is 0. Write 0. The 0 shows that there is no remainder.

$$\begin{array}{r} 6 \\ 3\overline{)18} \\ 18 \\ \hline 0 \end{array}$$

Try another: $9\overline{)72}$

$$\begin{array}{r} 8 \\ 9\overline{)72} \end{array}$$

Think "9 in 72?" Write 8 over the 2.

Think "8×9." Write the answer 72.

$$\begin{array}{r} 8 \\ 9\overline{)72} \\ 72 \end{array}$$

Draw a line under the last number, 72, and subtract. 72 from 72 is 0. Write 0.

$$\begin{array}{r} 8 \\ 9\overline{)72} \\ \underline{72} \\ 0 \end{array}$$

Try this example: $6\overline{)18}$

Then look at the second example at the top of page 5 to see if your work is right.

Work this one: $4\overline{)24}$

Then look at the second example at the top of page 5 to see if your work is right.

Work this one: $7\overline{)35}$. Then look at the third example.

Work A on page 5 the long way. Compare your answers and your work with the answers on page 9. Remember if you get all the examples under A correct, you do not have to do B. If you miss any in A, you must do B.

LONG DIVISION—STEP 1

$\begin{array}{r} 3 \\ 6\overline{)18} \\ \underline{18} \\ 0 \end{array}$	$\begin{array}{r} 6 \\ 4\overline{)24} \\ \underline{24} \\ 0 \end{array}$	$\begin{array}{r} 5 \\ 7\overline{)35} \\ \underline{35} \\ 0 \end{array}$

A

$4\overline{)36}$	$6\overline{)54}$	$8\overline{)48}$	$8\overline{)56}$	$8\overline{)64}$
$8\overline{)72}$	$9\overline{)54}$	$9\overline{)63}$	$2\overline{)18}$	$3\overline{)18}$

B

$3\overline{)24}$	$3\overline{)27}$	$9\overline{)18}$	$8\overline{)40}$	$7\overline{)28}$

C

You do not have to do C if you made no mistakes in B.

$9\overline{)72}$	$6\overline{)30}$	$8\overline{)32}$	$7\overline{)42}$	$5\overline{)30}$

D

D is only for children who made mistakes in C.

$9\overline{)81}$	$8\overline{)64}$	$5\overline{)20}$	$6\overline{)18}$	$7\overline{)49}$

For answers see page 9.

When the pupils have progressed according to directions through the first eight steps of long division they are ready for a practice test. This practice test is designed to contain every element of difficulty on which a child has practiced up to this point. The arithmetic further contains a considerable body of additional practice material. The pages in the correction book on which this appears are indicated by the key numbers under the answers to the examples appearing in the practice test. The following illustrated page will make this point clear:

LONG DIVISION—STEPS 1 TO 8

PRACTICE TEST

Form 1

$20\overline{)80}$ $98\overline{)396}$ $98\overline{)3530}$ $97\overline{)8739}$

$81\overline{)89}$ $86\overline{)6020}$ $85\overline{)7140}$

Compare your answers with the answers on page 30. If your work is correct, ask your teacher for a real test.

Form 2

You do not have to work Form 2 unless you made mistakes in Form 1.

$99\overline{)894}$ $97\overline{)5825}$ $21\overline{)84}$ $96\overline{)7010}$

$43\overline{)3870}$ $71\overline{)4544}$ $91\overline{)96}$

Form 3

Form 3 does not have to be worked unless you made mistakes in Forms 1 and 2.

$82\overline{)5498}$ $35\overline{)39}$ $96\overline{)388}$ $65\overline{)5858}$

$31\overline{)1674}$ $31\overline{)62}$ $95\overline{)6650}$

For answers see page 30

LONG DIVISION—STEPS 1 TO 8

PRACTICE TEST

Answers for page 29

Form 1

Suppose you did not get 4 for your first answer. The (111) under the 4 tells you to turn to page 111 in your Correction Book. Work 5 examples there. When you have corrected your work, you may take Form 2 of the Practice Test.

4	4_{R4}	36_{R2}	90_{R9}	
(111)	(114)	(117)	(119)	
	1_{R8}	70	84	
	(113)	(118)	(115)	

Form 2

9_{R3}	60_{R5}	4	73_{R2}	
(114)	(119)	(111)	(117)	
	90	64	1_{R5}	
	(118)	(115)	(113)	

Form 3

67_{R4}	1_{R4}	4_{R4}	90_{R8}	
(117)	(113)	(114)	(119)	
	54	2	70	
	(115)	(111)	(118)	

The Winnetka plan differs from the Dalton procedure in a second respect. The degree of advancement a pupil makes in one subject is not conditioned upon his advance in other subjects. The Dalton requirement that a pupil complete all of his month's contracts before undertaking a second month's work does not apply in Winnetka, and, consequently, a pupil progresses in each subject as rapidly as he is capable and more or less independently of other subjects. In the *Twenty-Third Yearbook* of the National Society for

the Study of Education, Superintendent Washburne cites the case of one gifted pupil who was "one year and one month advanced in reading, one year and six months ahead in arithmetic, two years and two months ahead in language." [1]

This progress in each subject without reference to other subjects carries with it consequences which further distinguish the two plans. Miss Parkhurst's plan makes possible crosslines of reference between subjects and thus insures a considerable amount of integration in the education of the child. This, as we saw above, is still further encouraged by the teachers' coöperation in writing their assignments. At Winnetka this integration of subjects is impossible, because a teacher of one subject can have no assurance that his pupils will have reached a stage of development in other subjects which will make possible a vital correlation.

Again, this lack of common understanding as between subjects, rules out of consideration a careful budgeting of a pupil's time in such a way that he will consciously plan to equalize his progress in all subjects.

A fourth essential difference lies in the place assigned to social activities. At Winnetka half of the morning and half of the afternoon sessions are devoted to individual work and half of each session to social activities. This involves a rather clean-cut division between these two forms of education, and, since little common background can safely be assumed on the part of children in the same grade, the extent to which social activities can vitalize or play into the individual assignments is decidedly limited. On the other hand, as we saw, in Miss Parkhurst's school the work in the "common essentials" is frequently mo-

[1] Part II, p. 257.

tivated by pupils engaging in group projects and common undertakings.

The following quotation from Superintendent Washburne's account of individual instruction at Winnetka brings out its essential characteristics and also the nature of the social activities.

"The teacher, under this plan, spends her whole time teaching, not listening to recitations. She helps an individual here or a group there; she encourages and supervises. She is about among the children as they work, not at her desk.

"No child ever 'fails.' Nor does one ever 'skip a grade.' If in June a child has not finished his grade's work, in September he goes on from where he left off. If a child can do more than a grade's work a year, he does so—but he does *all* the work, without skipping any. The child is on a piece-work basis, not a time-work basis. He gets the habit of mastering each thing he undertakes.

"During the half of the morning and half of the afternoon devoted to group and creative activities, the children are not working toward any set goals, nor are they tested. Going into one of the rooms during this part of the day, one may find the children dramatizing a part of their history work. Perhaps they are putting on a very informal impromptu dramatization, or perhaps they are preparing a more elaborate one which may be presented to the school as a whole during assembly. . . .

"It is during the group and creative activities part of the day that the Winnetka children have their field trips; that one room may entertain another; that creative work is done in art and in shop work, each child making the thing which he himself wishes to make. It is during this part of the day that the children issue their school newspaper, articles to which are contributed by children from the first grade up. The editing, type-setting, proof-reading, and business management of the newspaper are in the hands of the seventh and eighth grade junior-high-school children, who carry a real commercial account in one of the Winnetka banks, and pay all their bills with checks.

"It is during this freer part of the day that children learn how to fit their interests and abilities in with those of others, to coöperate,

to participate in the activities of the group. At such times they learn to merge their personal interests in the welfare of the whole, and they learn to contribute their special abilities to this group welfare.

"By providing flexibility of time for the mastery of common essentials and by providing opportunity for children to exercise and use their different interests and abilities, the Winnetka schools are adapting the curriculum to the individual differences that exist among children." [1]

With the broad outlines of these two methods of individualizing instruction before us, we shall turn, in our next chapter, to an appraisal of their contributions to educational procedure.

Bibliography

References for this chapter are found at the end of Chapter XIV.

[1] *Ibid.*, pp. 80–82.

CHAPTER XIV

AN EXAMINATION OF INDIVIDUAL INSTRUCTION

In the previous chapter we described the most distinctive features of the Dalton and the Winnetka plans. We saw that these two methods differ fundamentally in several respects. They are most marked, however, because in our description we have attempted in each case to depict the theories and the practices of Miss Parkhurst and Superintendent Washburne. Miss Parkhurst, herself, sees far beyond the individual aspects of education, being concerned, as she puts it, with the school "in its aspect of a human society." If we had confined our observations on the Dalton Plan to other schools, we should have emphasized somewhat more its concentration upon individualizing instruction and less its provisions for social education.

It will be necessary, therefore, in what follows, to distinguish frequently between the Dalton Plan as conceived and carried out by Miss Parkhurst and its operation in other schools.

Individual instruction makes one outstanding contribution to educational procedure which merits attention at the outset of any attempt to appraise its merits. It strikes directly at two grave evils in traditional teaching by breaking up the lock-step method of pupil progress and by substituting mastery learning for partial learning.

These two evils, lock-step procedure and partial learning, seem to go together. So long as a teacher requires pupils to recite in a group upon a common assignment, there is no way of preventing wide differences in learning products.

Indeed, it is not long since teachers were told they must secure a spread identical with that of a normal distribution curve. According to this theory only a small percentage of pupils should complete the period of study with a thorough mastery of the subject. A larger group is expected to see its work as through a glass darkly, while a third group will range from a slight proficiency to an absolutely hopeless state. Such results, we have been told, are indicative of good teaching!

Individual instruction opposes this conception of the normal curve in learning. Thus Washburne and his teachers in Winnetka have investigated carefully what materials are suitable for children of various stages in school progress and they have endeavored to learn what knowledges and skills are commonly needed. These constitute the basic materials for spelling, arithmetic, reading, social science, etc., and individual instruction provides for this mastery on the part of every normal child. Mr. Washburne says: "A normal distribution curve of achievement in a common essential is an admission of flat failure on the part of the school or the teacher." He says further:

"If a certain bit of knowledge or skill is necessary to practically every normal person, every child should have an opportunity to master it. There should not be excellent grasp for some, good for others, fair for others, and poor for still others—there should be real mastery for every child. The wide differences that are known to exist among children make it obvious that this mastery cannot be obtained by all children—or any group of children—in the same length of time and with the same amount of practice. Hence it is necessary to provide varying amounts of time and varying amounts of instructional material for different children." [1]

[1] "The Philosophy of the Winnetka Curriculum," *Twenty-Sixth Yearbook*, National Society for Study of Education, Public School Publishing Co. (1927), Part II, p. 220.

Individual instruction, therefore, in contrast with the normal curve theory of learning, enables pupils to progress at their own rate, but insists that each child come up to an approved level of efficiency as a condition for advance. The mastery of one assignment is the prime requisite for undertaking another. A partial answer in a recitation will not do, nor will the happy failure of a teacher to ask an embarrassing question enable a pupil to "get by." Each pupil must perform the entire assignment and his ability to do so is tested objectively and individually.

This is a much needed advance in educational procedure. The recitation system of promoting pupils on a "passing" grade has placed a premium upon partial learning and patchwork knowledge. Many pupils, in consequence, never learn what it means to do a thorough job, to complete an acceptable piece of work. Some words they never learn to spell. Simple processes in arithmetic, which are allowed to go unlearned in the grades, serve as serious stumbling-blocks for success in college chemistry or later high school or college mathematics. [1] Partial performance characterizes their education from elementary school through high school and college.

As against this partial learning individual instruction introduces into educational procedure a conception of thoroughness which is invaluable. Let us hope that whether or not it survives as an independent method, this positive contribution endures!

A second outstanding characteristic of individual instruction is its concentration upon a careful organization

[1] Dr. Luella C. Pressey, in a study of probation students in college, found that one cause for failure was inadequate elementary school preparation in the tool subjects. *Cf.* "A Class of Probation Students," *Research Adventures in University Teaching*, S. L. Pressey, L. C. Pressey, and others, Public School Publishing Co., Bloomington, Ill., 1927.

of assignments. The necessity of outlining school work in such a way that pupils can progress individually has brought with it a keener appreciation on the part of teachers of the nature of the learning processes involved in mastering a lesson. Quite commonly, after the adoption of the Dalton Plan, teachers have found that they can eliminate from their courses much that they formerly insisted upon, and can contribute thereby to the clarity of the pupil's understanding and his mastery of fundamental principles. They appreciate, as they did not before, the evils in the encyclopedic character of the ordinary textbook. Moreover, in order to provide the pupil with self-checking devices and tests upon his own progress, the teacher finds that he must analyze his teaching materials much more carefully than he did when he merely conducted a recitation. At Winnetka, Superintendent Washburne and his teachers have set about preparing their own study and drill materials and thus they have steadily replaced the conventional texts with materials more suitable for learning purposes.

This has led to a technique for organizing a curriculum as well as a method of teaching. In the field of what he calls the knowledges and the skills Superintendent Washburne has attempted to determine by investigation what are the essentials a child must acquire. These minimum essentials are arrived at by means of scientific studies of the "demands of society." Thus Washburne has made comparative analyses of vocabularies in order to determine what words children need to learn to spell. He has "Measured the speed and accuracy possessed by successful intelligent men and women in various arithmetical processes, as a guide to the degree of skill children are likely to need," and he has investigated what books are read by children of different ages and abilities. All of this is with a view to

establishing norms or standards of achievement for children in a year's time in a given grade.

It is evident that this intensive concentration upon planning a pupil's work both from the standpoint of how he should study and what he should study is a most valuable contribution. Our early attempts at improving lesson planning and encouraging teachers to make more careful assignments tended to dwell rather exclusively upon teacher activity. They stressed the significance of teacher perspective as well as mastery of details. They pointed out the necessity for and the value in an inventory and a classification of available resources such as maps, pictures and other illustrative materials, possible correlations of subjects, etc. In short, they emphasized predominantly the organization of subject matter for *teaching* purposes. Lesson planning under individual instruction presupposes all of this but emphasizes in addition the organization of materials and activities for *studying* purposes. It aims to equip the pupil with instructions so that he can proceed alone and can check his proficiency before he presents himself to the teacher for examination. Out of this analysis of study materials, within the area of schooling thus centered upon, will doubtless come advances in the understanding of the learning process which supervised study aims to attain but has failed to realize.

With these contributions of individual instruction frankly admitted, we must nevertheless ask ourselves whether the Dalton and the Winnetka plans are sufficient as educational methods. If, perchance, they are still inadequate, in the light of our modern educational ideals, an attempt to see their limitations as well as their contributions may aid us in envisaging a more comprehensive procedure.

The first conspicuous limitation in the operation of individual instruction is its meager provision for individual differences. The individual differences actually provided for are those of *rate in learning*. All pupils cover the same ground and in the same way irrespective of differences in ability, taste, interest, and background. There is no enriched curriculum. Progress is not adjusted to the specific needs of growth and development. The bright but immature pupil is not encouraged to browse more widely and more leisurely than an equally bright pupil who is more mature in physiological and social development. Each may race along as rapidly as he will. And, considering the unwise pressure that comes from parents and friends of gifted children for them to speed up and thus "save time" in their education, the scheme of permitting children to progress as rapidly as they can entails positive dangers.

As we have seen, the Dalton Plan differs from that followed in Winnetka in its provision for pupil progress. At Winnetka pupils progress entirely at their own rates. In Miss Parkhurst's school, on the other hand, pupils are frequently kept together for certain purposes. Moreover, as may be observed from the assignment in literature quoted in the last chapter, assignments in her school frequently provide that pupils working on the same assignment shall do different types of work. The committee work assigned for the literature project, already referred to, was made with the peculiar abilities and needs of the various pupils in mind. However, this conscientious attention to pupil differences is not so skillfully provided for in other schools where the Dalton Plan is in operation. For example, John Eades, Head Master of Kirkstall Road Council School, Leeds, England, in his description of "The Dalton Plan for Elementary Schools," which he contributes

to Miss Parkhurst's book, states: "Many children will have the March work finished in February, and the April work finished in early March. Then if they prefer they can spend the remaining time in the month on their favorite subjects—and probably they will be better educated through these than through any others—or they can push on with the next month's allottment. Most children prefer to do the latter, and many will complete the year's work in seven, eight, or nine months, and at once pass on to the work of the next standard higher." [1]

The standardized assignments published in England as applications of the Dalton Plan are further illustrations of the limited provision for individual differences which may come out of the plan when interest centers principally upon rate of learning. Nor are the schools confined entirely to England in which the Dalton Plan is accepted chiefly because it enables the school to individualize instruction completely in the academic subjects.

As we observed some time back, individual instruction depends for its success upon skillful assignment. If a child is to work alone, directions must be definite, clear, and detailed. The teacher's temptation is, accordingly, to oversimplify the assignment.

Two evils are likely to result. In the first place, the teacher is likely to do all of the original thinking and planning while the pupil merely follows directions. Superintendent Washburne states that at Winnetka, the child "is on a piecework basis, not a timework basis." The term "piecework" is significant. It has no place in education. It implies a division of work which robs the child of one essential part of his education: sensing a problem, devising

[1] By permission from *Education on the Dalton Plan, op. cit.*, pp. 203–204. Copyright by E. P. Dutton and Co.

methods for its solution, relating necessary means to appropriate ends, and bettering his instruments, in the way of common tools of knowledge, in the course of this exercise. Piecework in education implies working with predigested materials; it suggests following directions without thought or a sense of responsibility for the tools in hand and the results obtained; it accords with a view of education as merely the acquisition of skills.

To criticism similar to that which we are making, Mr. Washburne replies that he provides richly for social activities, which call for planning and coöperative living on the part of the children. He states, moreover:

"Our observation has been that schools which attempt to develop all their knowledge-and-skill subjects from childlike activities, often do a 'sloppy' job in giving the children mastery of the tool subjects, and sometimes distort the so-called 'childlike' activities in an attempt to bring in knowledge and skills.

"There seems no valid reason for supposing that all types of activity should correlate or that the same methods should be applied to all types of learning. It can be shown that children can master knowledges and skills happily and satisfactorily without tying these up to projects. And it has yet to be proved that children who do so master them are unable to apply them to life situations." [1]

This reply suggests the second danger in the individual assignment. Individual instruction may provide adequately for the mastery of certain essentials which lend themselves to individual mastery, and social activities may provide for still other values; but when the two are completely separated there is a strong probability that those values which depend upon an intimate interplay of individual activities and social relations will be lost. Professor Kilpatrick has forcibly made this point by stating that it is inaccurate to say that individual instruction at Winnetka

[1] *Twenty-Sixth Yearbook, op. cit.*, p. 227.

provides for instruction in the common essentials. It is more accurate, he states, for us to say that Winnetka provides for "some common essentials that lend themselves to self-teaching assignment." In short, individual instruction in order to be *individual*, and, in order to enable the child to proceed independently, of necessity strips off and eliminates many common essentials which cannot be thus taught.

On the other hand, when social activities are carried on with pupils who vary widely in their ability to progress on individual assignments, there is lost the opportunity of insisting upon an appropriate application of facts and skills mastered individually to the social situation. This point may be illustrated by referring to a school in which there is a conscious attempt to interrelate individual and socialized materials.

In the Open Air Department of the Ethical Culture School of New York City, an experiment is being carried on in teaching pupils within the same class group, who vary rather widely in capacity. In such a subject as arithmetic, for example, the course is divided into two parts. The one consists of carefully worked out units of facts and skills roughly similar to the Winnetka plan. The second part consists of thought problems which involve these same "essentials" but which are drawn from school life, common living situations within and without school, or from other subjects in the curriculum. These problems call for genuine thinking and group discussion, and sometimes for group action in the light of decisions arrived at.

A pupil may therefore progress throughout the year at his own rate in mastering the individual skills and the drill phases of arithmetic. If he completes definite segments of his work before his classmates, he is released for a time to

work upon additional material either within or without the subject in question. The school provides very carefully and richly for the ways in which he will thus broaden and deepen his curriculum. But no matter how rapidly the pupil progresses in the mastery of individualized material, he remains a member of the class group for the socialized phases of his subject of study. When arithmetic problems included in this section of the subject are discussed and solutions ventured, emphasis is not placed, at the time, upon correction of errors in calculation and the like. The teacher scrutinizes all work, however, for such mistakes and notes all need for drill or repetition of work done. When errors of application are made they become objects of practice for the drill division. Thus are individual and group progress at one and the same time kept distinct and yet intimately interrelated.

The criticism just made of the predigested lesson assignment under individual instruction does not hold equally of the Dalton and the Winnetka procedures. The group conferences provided for under the Dalton Plan enable teachers to stimulate original thinking and make possible pupil participation in appropriate phases of planning. Here, too, the degree to which pupils' initiative and creative thinking are aroused depends upon the extent to which the Dalton Plan is used as an instrument for individual instruction. Miss Parkhurst warns us not to confuse her plan with the curriculum. She conceives it rather as a vehicle for the curriculum. Nevertheless, no vehicle can be constructed quite independently of what it will carry, and the Dalton Plan is no exception to this rule. Even in Miss Parkhurst's school, assignments are very carefully worked out for months in advance and, while the teachers are most liberal in reorganizing "contracts" in the light of unforeseen

occasions and special pupil needs, the manner in which the contracts under various teachers are interlocked necessarily makes so doing an exception rather than a rule. That is, the coöperative construction of assignments on the part of the faculty is designed to make the assignments of one teacher dovetail into those of another. Consequently, a considerable deviation from these plans on the part of one teacher may seriously interfere with the plans of pupils and other teachers alike. There is encountered, therefore, more than the usual inertia of self-satisfied teaching as an obstacle to spontaneity and variation in learning. And while this limitation may not be conspicuously serious in a school animated by liberal educational aspirations, it is friendly to deadly uniformity in schools of another type.

It is doubtless this rigidity that is implicit in the Dalton Plan that causes Professor Kilpatrick to write as follows:

"The essential error of the Dalton Plan, then, is, as with all external examination schemes, that it accepts childhood as a time for storing up learnings to be used when called for at a remote day, typically in adult life. It is on this assumed theory that it sets up its series of learning stints reaching upwards from the fourth grade. It assumes that a child can learn these successive stints and hold them stored up available for use when they shall later be called for. It further assumes that it does not hurt the child to be treated in this way." [1]

Professor Kilpatrick analyzes in an equally effective manner this same tendency in Winnetka:

"And what now is the conclusion regarding Winnetka's plan of learning by goals? First and foremost, it tends to break the child's learning into two disconnected parts. One part, highly mechanical, belongs to the system of goals—a system too nearly complete in itself, too little connected with life. Stated psychologically, the danger is that the learning will not transfer. Stated in terms of life, the danger

[1] *Twenty-Fourth Yearbook*, National Society for the Study of Education, p. 279.

is a divided self—that the child will look on learning as something apart from life, something to be 'learned' and then put behind him. If it be rejoined that the freer classwork at Winnetka counteracts this danger, the answer comes that the freer work does seem to be in far greater degree continuous with life, but the gap still remains between the individual drill work and the freer group work. The two parts of school do not connect. And unfortunately, in the whole discussion at Winnetka, learning by goals seems to be counted as the essential." [1]

Were we engaged in a more exhaustive study of individual instruction, we should dwell extensively at this time upon the evil in the Winnetka technique of divorcing individual work upon the "common essentials" from the social activities which presumably are not so essential. Credit and advancement under this arrangement depend upon a child's individual achievement, and it is quite evident that greater stress will be laid upon individual work than upon creative activities in relation with one's fellows. A healthier procedure, as we have indicated, would seem to be the organization of school work in such a way that it interrelates both social activities and the acquisition of individual skills and knowledge.

We have already referred to the fact that the individual differences in ability actually provided for by individual instruction at Winnetka are differences in rate of progress. The enrichment of the curriculum is confined to the social activities carried on independently of what Washburne calls essential knowledges and skills. We have already pointed out that at Winnetka the common essentials are determined upon by a study of existing social needs and conditions.

But when norms of proficiency in spelling, and reading, mathematical processes and the like, are arrived at from a social survey and are then established as standards of

[1] *Ibid.*, pp. 284–285.

achievement in school work, we have inaugurated a system of teaching which is in grave danger of universalizing normal achievement and disregarding variations in children's intelligence, social status, or possible life objectives.

Perhaps no one will object to this leveling process when it applies to facility in certain arithmetical processes. It is probably of little value to improve one's ability to add beyond a certain standard of speed. It is less clear, however, when we come to deciding what words a child should learn to spell. And when we take the existing state of culture in the United States, as reflected by common allusions to persons and places found in present-day periodical literature, as a basis for organizing a curriculum in social science, we have indeed mortgaged the intellectual life of the future![1]

We may conclude then that a genuine provision for individual differences will take into consideration more than variations in rate of learning. In addition to insisting that each child come up to a standard norm, it will afford opportunities for further development in the light of pertinent facts of maturity and growth, interests, special abilities, disabilities, etc. It will recognize that all subjects of the curriculum cannot be subjected to the same treatment, nor can all children be equally educated with identical materials.

We thus see that while individual instruction makes a positive contribution to teaching method in its insistence upon a mastery of what is studied and in its careful provision for lesson assignments, it nevertheless has serious limitations. These limitations follow from its rather narrow provision for individual differences and its artificial separa-

[1] *Cf.* "Building a Fact Course in History and Geography," *Twenty-Second Yearbook*, National Society for Study of Education, Part II, pp. 99–110, and "Basic Facts Needed in History and Geography," *Ibid.*, pp. 216–233.

tion of individual progress from group activities. In this second respect the Dalton Plan offends less seriously than does the Winnetka procedure.

Nevertheless, in both plans, this unnatural division limits the values which are otherwise attainable in both individual study and social activity, because they are barred from vitally supplementing each other.

It would seem, therefore, that, strictly speaking, individual instruction is not a method of teaching. It is at best but a partial method. We accordingly turn to a third proposed method which has evolved in reaction to our traditional recitation system.

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CHAPTER XV

THE SOCIALIZED RECITATION

The socialized recitation represents a third reaction against the traditional classroom method of teaching. Just as the original recitation method reflected an individualistic philosophy, so the socialized recitation takes its character from certain democratic aspirations and ideals in contemporary life.

As we observed in Chapter X, the American public school established itself in the period preceding the Civil War, roughly during the first half of the nineteenth century. The monitorial system of teaching had revealed the possibility of universal education at little expense precisely at the time when liberal and radical influences were demanding that the privileges of a free and a public education be extended to all children. This extension of educational opportunities, however, was viewed as a democratic privilege open, to be sure, to all children but guaranteed only to the deserving and the worthy. That is to say, the early conception of public education was not identical with our present theory of universal education. No one believed that all children either should or would take advantage of this extension of school facilities. Many were to be called to participate in a free education, but few were to be chosen.

Consequently group instruction was a teaching device, an ingenious instrument rather than a method consciously designed as an appropriate means for training and educating the future citizens of a democracy. In no sense was it conceived essential for developing those qualities which are

peculiar to socialized living. Democracy was still individualistic, and preparation for democratic life still consisted in acquiring the ability "to go it alone." Hence no more was asked of a child than that he "learn" his lessons. And this was an individual matter. He was not expected to share with his comrades in the common pursuit of knowledge. Indeed the organization of the school and the classroom provided rather positively that he should not do so.

In recent years the results of our industrial civilization upon people's ways of living have become more manifest. The daily activities of a person are now seen to involve intimately the interests and activities of others. Hence the individual citizen is no longer conceived to be an insulated atom rather loosely associated with other insulated bodies. He is now pictured as a member of a living organism whose healthy functioning depends upon an intimate identification of interests as between whole and part. Professor B. H. Bode has given us an excellent statement of the new conception of democracy and its implications as regards the interests of the individual. He points out that the elements which we must recognize in an attempt to define democracy are:

"(1) That our tradition of democracy is an embodiment of the demand for the fullest possible expression of native capacity in the individual; (2) that it is a larger and more vital thing than any set mode of conduct through which it may have found expression in the past; (3) that this expression of native capacity must come through coöperation based on mutual recognition of interests and through progressive modification of institutions and practices. Democracy, then, may be defined as *a social organization that aims to promote coöperation among its members and with other groups on the basis of mutual recognition of interests.*" [1]

[1] From *Modern Educational Theories*, 1927, pp. 13–14. By permission of The Macmillan Company.

This conception of democracy as an organization which promotes coöperation on the basis of mutual recognition of interests, requires for its realization an educational program which aims directly at the socialization of the individual; and it requires the organization of the school in such a way that the child develops traits of initiative and responsibility within a group membership and in harmony with group interests.

It is not surprising, therefore, that the individualistic character of the recitation has recently been subjected to severe criticism. Progressive teachers realize that the ordinary recitation method fails conspicuously to train pupils in coöperative living. As Harl R. Douglass states in his book on *Modern Methods in High School Teaching*:[1]

"In the recitation there are groups of pupils—the human material of social situations—but, because of the individualistic and authoritative methods used by the teacher in instruction, actual social situations are not created except in a very limited way. There is no group aim; there is no opportunity for coöperation. The responsibility of each pupil is not to the group, but to the teacher. The relation is that of pupil-teacher rather than that of pupil-group. Recitations are not made as contributions to the group, but to the teacher, and ordinarily no pretense is made by the pupil of addressing the group when reciting. While here and there group discussions or projects are carried on, the catechetical type of recitation is employed more regularly than is any other form.

"It is a rare class, under the recitation system, which is characterized by a coöperative attitude. In fact, the type of teaching we have just described tends to prevent the creation of just this. The incentives of the school, too, are based largely upon an appeal to rivalry and other individualistic tendencies. Medals, privileges, and grades are not calculated to result in coöperative effort. Too often school work, under such conditions, is a case of 'every fellow for himself, and the devil take the hindmost.' The nature of the class assignments,

[1] Houghton Mifflin Company, 1926, pp. 243–244.

too, is such that each works by himself, and for his own individual progress. Each one's work is to be one's own."

A second limitation in the recitation, emphasized by advocates of a socialized procedure, is the failure to develop pupil responsibility for what goes on in the classroom. They point out that pupils view the tasks upon which they are engaged as external requirements. The teacher has assigned them and upon the teacher, therefore, rightfully rests the responsibility for carrying them through to successful completion. In consequence, only a few pupils really master their assignments and he is a rare individual who does more that the teacher requires. In the lower grades, where children still retain their spontaneous and naïve interests, the activities of the schoolroom reach over into the home and reflect themselves in the children's play and their unsupervised life; but it is not long before children develop a resistance to school work and they affect, if they do not actually possess, an indifference to the work of the school. He who would influence the thinking and the behavior of young people today must carefully avoid giving to his suggestions or his methods any similarity to conventional school procedure.

As against this individualistic procedure and the external motivation of school work the socialized recitation endeavors to organize pupils into genuine social groups. They are made to feel that they constitute a society with common purposes and with working plans of their own creation. While the teacher may control more than she appears to do, her guidance is indirect rather than direct; and pupils are granted every opportunity to make choices, to plan, to execute, and to order their work.

For example, a geography class was about to take up the study of China. The teacher asked the pupils what they

would like to learn about China. Some suggested the history of China. Others wished to learn about the government and the causes leading up to the internal conflicts of 1926 and 1927. Others wished to investigate the possibilities of China as a world power. A few wished to concentrate upon Chinese art and religion. The choices were listed and the pupils voted upon each topic with the understanding that the topic receiving the lowest number of votes should be eliminated and this process followed until only one topic remained.

When the topic was thus determined upon it was suggested that the pupils gather what information they could from a rapid reading of a number of books upon China and that they prepare tentative outlines which should serve as guides for their future study. Then followed a class discussion in which these outlines were submitted and the class as a whole constructed its plan of study. The major topic was thus broken up into subtopics and an isolated question began to spread out and include all that would normally comprise a conventional discussion of the geography of China.

There was this difference, however. The pupils had now identified themselves with the task in hand and they felt that they had outlined the work which they were to carry to completion. They now proceeded to divide into subgroups for the purpose of concentrating upon special phases of the general problem. Each subgroup began to read suggested sources and to organize data for class presentation.

When well conducted the socialized recitation makes several distinct contributions to teaching method.

In the first place there is the social stimulus for undertaking serious intellectual work. In one classroom conducted on a socialized recitation basis, it is customary to

divide the class into subgroups and each group under the direction of its elected leader assumes responsibility for certain phases of a study. These subgroups consult together, search out all references bearing upon their topic, read these, portion out appropriate sections or subtopics, and conduct rehearsals for the main recitation. In these preliminary meetings each member's report is corrected or modified and approved, as the case warrants. When ready for a report the subgroups present the fruits of their labor to the class as a whole. These pupils thus succeed in developing in each member of the class a feeling of responsibility to the group. They approach very closely to the following ideal set up by Robbins as one of the purposes of the socialized recitation:

"Socialization is a process in which the 'we feeling,' good will, common interests and purposes, actual participation, and a feeling of responsibility to the group are essential elements. Through them the individual is transformed from potential membership into participating fellowship. In this transformation he ceases to be an isolated and independent human entity incomplete because of his isolation and independence. His personality is enlarged and enriched through his group and through the efforts which he puts into the struggle for the common good." [1]

In the second place the socialized recitation provides a means for a more thorough and substantial mastery of information than the method according to which pupils subject themselves to the questioning of the teacher. The confession of failure wrung from a careless or lazy worker by his classmates leaves a sting and a spur to future effort which few teachers can inflict. On the other hand, successful performance frankly recognized and praised by his peers thrills a pupil more than does the average

[1] Robbins, Charles L., *The Socialized Recitation*, Allyn and Bacon, 1920, p. 16.

teacher's commendation. Moreover, the method of the socialized recitation stimulates pupils to read more widely. Newspapers and magazines, books at home and in the school library are searched much more avidly for information bearing upon school work than under the traditional procedure. The pupil thus develops a familiarity with the library and methods of gathering data which become invaluable for his later growth. The preparation he makes for his reports to his colleagues calls for organizing ability, note taking, etc., which render him conscious of the importance of developing tools of study.

The socialized recitation has within its power, therefore, to develop habits of study in a perfectly natural situation. However, tools of study such as outlining, securing the central thought from a passage, summarizing or digesting a chapter, require for their mastery more than an incidental emphasis. They are skills which a child can only take on from direct, conscious, and persistent practice. Consequently if they are to be acquired at all, they must be practiced intensively and individually. Their acquisition calls for a procedure different from, or supplementary to, the socialized recitation.

It is no surprise, therefore, to find teachers who are ardent practitioners of the socialized recitation, neglecting to train their pupils as thoroughly as they might in habits of study. Their concentration upon the values which come out of group work diverts their attention from the necessity of special emphasis upon individual peculiarities and needs in ways of learning.

Indeed the same pupil leadership and initiative which fosters the values of socialized procedure may work injury to other phases of the learning process. The pressure of the group mind which rightfully spurs a pupil forward

in certain sections of his work may operate to his injury when the cause for his error or his slowness is a defect of training due to no fault of his own. Pupils are no more richly or natively endowed than their teacher with an understanding of learning difficulties peculiar to a slow, a handicapped, or a retarded pupil. Not only is there a tendency in the socialized recitation for the clever or the bright pupil to monopolize the situation, but the problem child is in grave danger of being lost in the shuffle. His classmates will not handle him with gloves and there is nothing to prevent learning difficulties from developing into genuine conduct disorders or injurious personality complications. Only an extremely wise and tactful teacher can avoid these outcomes. And he avoids them by substituting for a socialized procedure an individual diagnosis and an individual prescription and regimen.

Intimately connected with the common failure of teachers who use socialized recitations to provide for individual needs in habits of learning, is their failure to adapt the materials of instruction to individual differences in interests and abilities. Indeed, the materials of learning used in socialized recitations are frequently as foreign to the genuine concerns of child life as those of the traditional recitation or textbook. Where the superficial interests of children are followed literally, it is not uncommon to find a class dealing with problems far beyond its years.[1]

[1] For example, a seventh grade child asked her teacher if she might not report on sex attraction for her special English topic, thus clearly reflecting conversations in her home which were beyond her comprehension; and the pupils of an eighth grade literature class asked if they might include *An American Tragedy* in their reading list. When the teacher permitted a report from a thirteen-year-old girl on this work it was distinctly a thirteen-year-old report. The point is, the reading interests should be respected so that from a desire to read *An American Tragedy* the pupils could be led to transfer this interest to books more nearly adapted to their age.

On the other hand, the willingness of pupils to take the reins where dropped by the teacher may result in an apparent interest in subject matter which is as inadequately organized as before. There is nothing inherent in the socialized procedure to guarantee, apart from careful teacher planning, that subject matter will take the child out of the classroom or light up his out-of-school existence with new meaning and significance. Because children assume what seems to be the direction of their own learning, is no certain indication that they will develop from a subject its inherent possibilities in the way of a richness and breadth of human sympathy, creative imagination, or a genuine interest in the subject itself. The very enthusiasm which the pupils manifest in their own self-direction may blind a teacher to the artificial and transitory character of their interest.

It has doubtless occurred to the reader in our description of the way in which one class organized the study of China, that this procedure consumes considerable time. This suggests a further danger in the socialized recitation. There is a temptation to waste time. Such a criticism should be prefaced with the remark, however, that what may seem at first glance to be a waste of time is not always such in fact. The well-organized and digested assignment which a teacher makes to his class frequently fails to take account of the pupil's psychology. Its condensed character, and the brief time it consumes, causes it to rebound from the pupil's mind with little effect. On the other hand, the mulling over of a topic, the consideration of its various possible avenues of approach, warms the pupil's mind and suggests angles of interest peculiar to his own background. There results, accordingly, in his study, a motivation for his work and there is fostered an independent and un-

supervised reading that traditional teaching fails to develop. Parents and librarians testify to the increased range and the voluminous character of a child's reading that the socialized teaching frequently stimulates.

But it is extremely difficult to decide when a preliminary discussion has gone far enough and when its conclusions should be gathered up and tied together. To this difficulty should be added that of deciding how much freedom should be permitted pupils in selecting topics of which, quite obviously, they know little in advance. It is unquestionably true that not only is much time wasted by socialized recitations in aimless discussions, but pupils are encouraged to select topics of study without an adequate apperceptive basis for their choice. A teacher does not smother the initiative of his pupils when he presents a topic for consideration, suggests its importance, indicates in what way it will contribute needed information or the like, and finally affords them a choice between several alternative approaches to the study.

When we come to discuss the project method we shall face more directly the problem of how far a pupil should control the selection of subject matter. At this point we shall assume that what is appropriate at one stage of learning is not equally appropriate at another. If this be a safe assumption, it suggests the limits within which the socialized procedure can function appropriately. When a foundation has been laid in any subject the socialized method may be used to stimulate further study. Moreover, a more thorough mastery of what has already preceded may result if pupils are encouraged to follow up special aspects of a problem either in groups or as individuals, with a view to reporting back their findings to the class as a whole. Such special investigations, as culminating

stages in learning, may take on all the values of the socialized recitation and at the same time avoid the evils we have indicated.

This restriction of the socialized recitation to a certain stage in learning suggests, however, that in a true sense it is not a method in itself but is rather one phase in a larger teaching procedure. And this is precisely the main contention of this chapter. At best the socialized procedure is adapted to only a few subjects, and its advantages are restricted to certain areas within these subjects. In the presentation of new materials in science and history and mathematics, it is either a wasteful and time-consuming method or otherwise inappropriate. In the learning of a new language it has definite limitations; and it is ill adapted for the purpose of clenching a principle or grasping a new application because the amount of assimilative material essential for such purposes clearly varies with individuals.

It would seem, therefore, we must conclude that while the socialized recitation makes certain invaluable contributions to educational method, it is in no way a complete remedy for all of the ills of the recitation. It, too, is but a partial cure. Although it serves certain purposes admirably and functions indispensably at certain stages of learning, there is required the supplementation and the coöperation of other methods before the total needs of a teaching procedure are adequately met.

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CHAPTER XVI

THE PROJECT METHOD: MEANING OF THE TERM

Some twenty years ago R. W. Stimson, at the time a representative of the Massachusetts Board of Education, devised a plan for vitalizing the teaching of agriculture in the vocational high schools of Massachusetts. Accordingly, he took over the conception of the project which was already being employed in certain forms of business training and which was being used by a considerable number of art, music, and manual training teachers. What Mr. Stimson proposed to do was to supplement the regular class work of the school with home projects. Thus in the Smith Agricultural High School at Northampton a trained teacher was employed for the summer months of 1908 to assist and direct boys in selecting and carrying on appropriate home tasks, which tasks should involve the concrete application of principles already learned in the school.

This plan was successful from the start. Consequently, in 1911, the Massachusetts Legislature agreed to pay two-thirds of the salary of specially qualified teachers whom a selected list of high schools might employ. In this action Massachusetts set the standard for a new departure in vocational education. Other states very soon followed her lead and in 1917 the Smith-Hughes Law gave to supervised home project work a national character and federal support. One of the provisions of this act is that schools which receive federal aid for agricultural instruction shall provide for directed or supervised practice in agriculture for at least six months each year.

On the face of it, the policy thus inaugurated in Massachusetts does not seem to involve a revolutionary procedure in teaching; but it seems, nevertheless, to have been the occasion, if not the cause, for releasing a veritable torrent of educational discussion and stimulating most significant experiments in teaching method and curriculum organization. What began as a simple endeavor to facilitate the application at home of what a pupil learns in an agricultural school, has developed into a proposed "method" for reorganizing the entire school curriculum; and the term "project method" is now used by no less an authority than Professor William Heard Kilpatrick in order to characterize the most adequate provision for the guidance and direction of the learning process.

In order to understand clearly the development of project teaching into a method of curriculum organization, as well as a teaching procedure, it may be well to observe the characteristics of the original projects. In the first place, their primary purpose was to supplement regular school work. In the early stages of project teaching, at least, it was not proposed to disturb the existing character of school work. Secondly, they involved an application of principles learned in the school to what might be called "real life" situations. Before the boy engaged at home upon a project involving the testing of seeds, or the raising of potatoes, or keeping an accurate financial account of the farm dairy for a stated period of time, he had already studied at school the principles thus exemplified. The real life situation was thus not the *beginning* of a learning situation, but its culminating stage; and, thirdly, it should be observed that the project, in so far as it involved an actual home *problem*, was presumed to exercise an immediate appeal to the pupils' interest. It was "real life," a genuine problem. Never-

theless, we should likewise observe at this point that its problematic appeal and its interest to the pupil was incidental to the original purpose, a fortunate by-product rather than an inherent reason for the procedure.

It is well to keep these three aspects of the original project in mind in order to understand the later divergent uses of the term. In common with all new words the term "project" was employed to designate a situation which contained within itself the possibilities of further growth. Each of the three aspects of the original agricultural project was of such a character that it could develop in comparative independence of the other two, and yet in this development it would quite naturally retain its family name.

Take, for example, project work which is used to supplement regular class work by work at home. It was not long before the term was extended to include not only any supplementary activity of a practical character in any subject which involved the application of a principle learned, but virtually any worth-while undertaking of a supplementary educational nature which a pupil might be permitted or encouraged to engage upon *in addition to* the regular assignments of the class.

As an illustration of the earliest extensions of the term "project," we might cite the case of a physics teacher who suggests to a number of his pupils who have completed the topic of heat before other members of the class, that they construct a model of a heating plant. In this case the supplementary nature of the project is taken to justify the use of the term, although the real life situation is merely imitated, and the interest appealed to is of a play character. Moreover, in its supplementary character, there is distinguishable a difference between the pupil's point of view and that of the teacher. For the pupil, the sources of his

interest may proceed from the play impulse, the opportunity to construct what is essentially a toy, while for the teacher the dominant purpose is thereby to emphasize better the principles learned in a study of heat.

Very shortly, however, teachers began to employ the term "project" to designate means adopted for enriching the curriculum in the interests of capable students, and for more adequately developing individual differences in general. These teachers began to organize their subjects in such a way that all pupils were required to master in common certain minimum essentials but were encouraged to select, in addition, problems for further intensive study from a group of related supplementary projects. Thus, Howard C. Hill, of the University of Chicago High School, in describing the organization of a course of study in Modern Problems, divides the units of the course as indicated below. We will take as an illustration the unit on Liberty and Law.

I. Minimal essentials
   1. The meaning of liberty and law
   2. Episodes in the struggle for human liberty by the establishment of law
      a. King John and the Magna Charta, 1215: the crystallized foundation of modern civil liberty
      b. The Stuart kings and the Glorious Revolution, 1688: the substitution of parliamentary government for royal personal government
      c. George III and the American Revolution, 1776: a vindication of the right of revolution against personal and unrepresentative rule
      d. Lincoln and the American Civil War, 1861–1865: a victory for government by popular majority and for law
      e. The World War, 1914–1918: a struggle to make the world safe for democracy and to establish the orderly development of international law

II. Supplementary projects
1. The early history of the British Parliament
2. The beginnings of the British Cabinet
3. The establishment of the third French Republic
4. The Spanish-American revolutions of a century ago
5. The Chinese Revolution
6. Charles I and the Petition of Right, 1628
7. The Great Reform Bill, 1832
8. A hero in the struggle for human liberty: John Eliot, John Hampden, or Oliver Cromwell
9. The early development of international law [1]

On the other hand, in the Open Air Department of the Ethical Culture School, New York City, the teachers of such subjects as geography, history, French, English, etc., have listed an approved series of "projects" which may be undertaken by pupils who have gained extra time by the early completion of their grade requirements in spelling, formal arithmetic, formal English, etc. Such projects are of indefinite duration, being virtually the carrying on of special or research interests in certain selected fields. The student pursues his investigation under the guidance of a teacher, gathers his data and illustrative materials, makes his visits to library, museum, or what not, and finally writes up carefully the results of his study. The following are a few samples of such projects.

GRADE VII

SPECIAL PROJECTS

Open to those who have gained time from Spelling, Formal Arithmetic, Formal English, etc.

[1] *Studies in Secondary Education*, II, Supplementary Educational Monographs No. 26, Department of Education, University of Chicago, Chicago, Ill., 1925, pp. 144–145.

GEOGRAPHY

I. Read about how the steam engine caused the workman to do his work in a factory instead of in his home.
   A. Rugg, *Resources, Industries and Cities*, pp. 209–220.
   B. Follow this by reading how *one* of the following industries was revolutionized:

Cotton weaving	pp. 221–239
Shoe making	pp. 239–244
Automobile making	pp. 245–248

   C. Read about machines that make machines that make cloth, shoes, and automobiles, pp. 249–254.
   D. After reading through once, re-read, taking some notes and prepare to report upon your topic. Or, make an illustrated booklet.

II. Study about the steam engine. Make a large diagram and be able to explain how the steam drives the engine.

III. What the invention of farming machinery did for the production of food; how it affected the growth of population, of cities, and of manufacturing.

Read one of these references:

Old edition of *The Mechanical Conquest of America*, pp. 1–9, 73–76; *Resources, Industries and Cities*, pp. 259–272.

After reading through once, re-read, taking some notes and prepare to report upon your topic. You may make an illustrated booklet.

GRADE VII

SPECIAL PROJECTS

Open to those who have gained time from Spelling, Formal Arithmetic, Formal English, etc.

HISTORY

I. How New York City is governed
   Who makes the laws
   Who executes them
   How we are provided with:
   Water

Transportation facilities, etc.
How our streets are cleaned

References:

Municipal Government of the City of New York. . . Baker & Ware
Guide to the Municipal Government. . . . Caccavajo
We and Our Government . . . . . Jenks & Smith
Pamphlets about special phases.

Visits to
The Municipal Building
City Hall, etc.

II. A special study of street cleaning in New York City
How the streets were cleaned in the past
How they are cleaned now
Some practical suggestions for making and keeping the streets and parks cleaner than they are now kept

III. Plans for a class government
Parliamentary Law, the rules which should regulate meetings
A Constitution
References:
Parliamentary Procedure . . . . A. M. Fields
Students' Hand Book of Parliamentary Law . . . F. Leighton
Roberts's *Rules of Order*
Cushing's *Manual of Proceeding and Debate*
Typed Lessons . . . W. Stillman

IV. A collection for your history notebook
Maps, pictures, and descriptions of the United States at the close of the Revolution and beginning of the National Period
References:
The many old histories in the lunch room cabinet
Advertisements in magazines
Books of travel

V. Read up and prepare to report on some phase of the wonderful westward expansion of the United States.
Experiences of some explorer, *e.g.*,
Daniel Boone

Zebulon Pike
Lewis and Clarke
J. C. Frémont
Conditions of Pioneer Life
Houses
Transportation
Government
Occupations
The Fur Trade
Life of the Indians of the Plains; the Indians these later explorers and pioneers met.
History of some of the great trails
Oregon Trail
Sante Fé Trail
California Gold Rush

We have thus far illustrated the development of the term "project" with respect to the first and most conspicuous aspect of the project method, projects as supplementary activities. While these projects supplement regular school work they have undergone a number of significant changes. In addition to the original purpose of serving merely as applications of learning which is presumed to have already taken place, they may now be planned as integral parts of the learning process (*e.g.*, Hill's course of study in history), or they may be independent learning ventures in their own right (*e.g.*, the Ethical Culture School). Moreover, in these new rôles, projects have developed into undertakings which go on both within and outside the schoolroom.

We now turn to the evolution of the second characteristic of the original project, its real life application. To many teachers the undoubted enthusiasm with which pupils engaged upon projects, in contrast with their attitude toward regularly assigned school work, derived from the connection of the projects with real life. Consequently, teachers began to ask themselves, "Why should we not

organize the regular course of study around concrete living situations, or vivid imitations of life situations, and thus reduce to a minimum the formal character of school work? Instead of confining projects to the applications of a principle or facts previously learned, why not reverse the procedure and organize class work so as to move from the concrete situation to the fact or principle or generalization?" Accordingly science teachers, for example, might introduce their classes to the study of electricity by having pupils construct a telegraph, a telephone, or a radio, and derive from these first-hand contacts with the applications of electricity the scientific principles which are commonly acquired first from textbooks.

In the elementary school particularly, but occasionally in the high school, many teachers have developed an enthusiasm for this way of teaching and organizing subject matter. Under the guidance of the teacher, the class decides what projects it will concentrate upon, and then through a committee organization or otherwise it launches upon the project selected. In the *Teachers College Record* for November, 1920,[1] Professor Hatch, of Teachers College and the Horace Mann School for Girls, describes his method of conducting a class in modern history. After a rapid chronological survey of the chief developments in modern history, he has his class decide upon certain contemporary problems which the pupils would like to investigate in the light of their historical background. By carefully selecting problems in this way he finds his class can "cover the ground" of modern history as well as the traditional class which follows a textbook, with the added advantage that his class has focused the subject matter of modern history upon the outstanding issues in present-day life.

[1] Vol. 21, pp. 450–469.

It will be observed that when a course is taught in this manner it is difficult to decide whether to term it a socialized recitation or a project. The two procedures and the ideals back of the two methods become indistinguishable. The essential point to observe, however, in this connection, is the fact that the project, both in the eyes of the teacher and the pupils, tends very soon to become more important than the facts and principles derived therefrom. Professor Hatch, since he teaches in an eastern college preparatory school, cannot forget that the pupils in his classes will have to submit themselves to College Entrance Board examinations where facts and principles will be called for out of their natural setting; and hence he does not fail to classify and organize facts into systems appropriate for examination purposes. In the elementary school and in institutions not subject to such artificial and external tests, however, this concern for consciously formulating and organizing the knowledge implicit in projects is frequently neglected. In extreme cases teachers deny the necessity for such a procedure, taking the stand that what the child learns incidentally in working out his project sufficiently serves his needs as a child, and that the gradual maturing of his experience and the uses to which he will put his knowledge in the course of his development, will eventually result in a satisfactory logical organization.

When this course is followed, however, the project begins to subordinate its real life character to pupils' interests and purposes, and the third aspect of the original project begins to function as the camel's nose. Before tracing out the implications of this third point of view we must indicate further extensions of the emphasis upon the real life character of the project.

As indicated at the end of the paragraph above, a cen-

tering upon a natural problem subordinates interest in classified knowledge to a "natural organization." Professor Bobbitt thus states the case for a natural organization of knowledge:

"A boy, for example, in the school shop wishes to construct and operate a telegraphic apparatus. This ambition will serve as the center of the science training. He will be motivated to gather information concerning batteries, wiring, electromagnets, making and breaking of circuits, etc. He will learn just the things that he needs for the task in hand; and nothing more at the time. Through using his ideas in the planning and in the actual construction he comes to realize the full significance of the various facts. The derived interest aroused is for most individuals more potent than the native interest in the abstract science facts and principles. For this reason the knowledge is more effectively driven home and remembered.

". . . Only under such circumstances can knowledge properly reveal its significance, be rightly focused upon human affairs, or be normally assimilated. Knowledge and doing should grow up together." [1]

As is evident from this quotation from Bobbitt, concentration upon real life situations does not ignore a pupil's interest. It rather takes for granted, however, that interest is derived from, or dependent upon, the real life context. In J. A. Stevenson's discussion of the project method, on the other hand, we find natural setting used as a criterion for identifying a project, when by natural setting he evidently means at one time a living interest as vital as one might experience in real life outside of the school; and, at another time, he means an actual or a close approximation to a real life situation. For example, he writes:

"The boy in an agricultural school who determines to test his father's seed corn as a part of the assignment of the school work is carrying on the problem in a natural setting. The problems in mathe-

[1] *The Curriculum*, Houghton Mifflin Company, 1918, pp. 30–31.

matics that are solved in school with the same incentive and purpose that prompts their solution outside of school, are solved in their natural setting. The study of the gasoline engine in the physics class would be considered as a problem in its natural setting provided that the motives prompting the learning of the parts and the way to run the engine were not different from those that would dominate the same learning situation outside of the school. The reading of *Ivanhoe* in school would likewise be done in its natural setting if the motives prompting the reading were similar to those which cause people outside the school to read the book." [1]

This slippery conception of natural setting is bound to cause trouble.[2] When it is taken in connection with other criteria used by Stevenson,[3] it rules out projects which are designed to exemplify, or illustrate, or apply in the sense of confirming principles previously learned.

Under these circumstances, we can understand how some teachers will tend to subordinate the pupil's interest to natural setting of a real life character; and by identifying real life with adult achievements or needs, the project curriculum comes to consist of adult activities with which children should concern themselves.

For example, take Professor Martin J. Stormzand's discussion of the project in his book on *Progressive Method*

[1] From *The Project Method of Teaching*, 1925, p. 14. By permission of The Macmillan Company.

[2] For an excellent discussion on natural setting as a teaching procedure, see Alberty, H. B., *A Study of the Project Method in Education*, Chap. III. Ohio State University Press.

[3] Stevenson's definition of the project is, "A project is a problematic act carried to completion in a natural setting." He further explains: "In this definition it is to be noted that: (a) there is implied an act carried to completion as over against the passive absorption of information; (b) there is insistence upon the problematic situation demanding reasoning rather than merely the memorizing of information; (c) by emphasizing the problematic aspect the priority of the problem over the statement of principles is clearly implied; and (d) the natural setting of problems as contrasted with an artificial setting is explicitly stated." *The Project Method of Teaching*, pp. 43–44. By permission of The Macmillan Company.

of Teaching. Professor Stormzand attempts to define a project by distinguishing it from both a problem, on the one hand, and a play activity on the other. He distinguishes between problems and projects by attempting to draw the impossible line between solving problems on the "mental plane" and solving them "in the realm of the *real*, the material, the physical, the practical." Problems on the mental plane are problems, but the latter are projects. Thus, planning to build a house is a problem up to the point where an individual begins his actual work with saw and hammer and lumber. Once the physical materials are introduced, the project begins. And secondly, in order to retain the real life emphasis in projects as against exclusive attention upon pupil purposing, Stormzand introduces the criterion of life use as a distinguishing characteristic. This rules out play projects from the best project society. For Stormzand, the construction of a toy sled in a school shop would not be a genuine project. A sled to be a project must be a real sled actually designed for real sleigh rides.

This effort on the part of Stormzand to define the project in terms of "a genuine activity such as men are engaged in in real life" tempts him to classify as projects a wide variety of "activities" derived from our analysis of adult life without critical attention either to the manner in which they should be acquired, or the organization of the school materials which will involve these activities. Thus for a course in English "Expression," he lists the following "projects," "expressed," as he states, "from the point of view of the teacher":

1. Students should know how to write a business letter "in good form" in every detail.
2. The same for a "friendship" letter.

3. Students should know the difference in "spirit" between the two.
4. Students should know, before graduation from high school, how to preside at a public meeting, and how to dispose of the more common parliamentary exigencies.
5. Students should know how to take part in a public meeting to the extent of:
   a. Making and seconding motions.
   b. Amending a motion.
   c. The formality of securing the floor.
   d. Raising a point of order and why.
   e. Raising a point of information and why.
   f. Calling for the question.
   g. Making a committee report.
   h. Presenting a formal resolution.
   i. Keeping minutes for a meeting.
   j. Making motions to table, or to adjourn.
   k. How to formulate an "order of business for a meeting."
6. Students should know the "art of definition."
7. Students should know how to take systematic notes on a lecture, and to report orally on such notes.
8. Every high-school graduate should understand thoroughly the method and values of some systematic scheme (not too detailed) of outlining, with the principles of coördination and subordination.
9. He should know a system for collecting material on an extended topic.
10. He should be able to make a free, natural, orderly arranged ten-minute speech, on short notice, on any topic with which he is familiar.
11. He should be conscious of the need of extending his vocabulary, and know how to do it.
12. He should be able to write an "acceptable" news item of a half-column or so.
13. He should be able to tabulate and to graph a statistical table of social data.
14. He should have a "sense" of the paragraph. (Associate with Project No. 8 above.)
15. He should be able to spell, with at least ninety per cent accuracy, the 3,000 most common English words.

16. He should be able to write and speak without violating the "most-common-errors" list.
17. He should be able to apply the most common rules of punctuation.
18. He should have a live interest in current events and present-day problems of citizenship. This is as much the function of the English course as of courses in American history and civics. The student should be taught in the English course how to satisfy his interest efficiently, and how to make it function in action.[1]

Undaunted by his previous insistence that the term "project" should not apply to problems solved on the mental plane, Stormzand proceeds to list other outcomes from school work, including the techniques of study, objectives in "appreciation," etc. For Stormzand and his colleagues it would appear that the project is no longer a supplementary task designed to clench principles learned in school, nor an affair primarily growing out of a pupil's present purposing, but the acquisition in school of the abilities requisite for an adult in the real business of living!

The most recent and probably the most conspicuous development of the project method centers upon the third aspect of the agricultural project, the fact of the added incentive and interest which a task in real life involves. Consequently, we find a group of educators defining the project more or less exclusively in terms of its purposive character, on the assumption that the real life character and the applications of knowledge used, will take care of themselves once the pupil whole-heartedly identifies himself with the task in hand.

In practice, the two outstanding representatives of this conception of the project are undoubtedly Ellsworth Collings and Margaret Elizabeth Wells. For a complete

[1] *Progressive Methods of Teaching*, Houghton Mifflin Company, 1924, pp. 151–152.

description of the methods employed by each we must refer the reader to the books describing their experiments. We can mention merely the major characteristics of their procedure. Both abolish the traditional subject organization of the curriculum and organize the school experiences of the child about projects. Their position is that the facts, skills, habits, attitudes, ideals, etc., commonly realized through the regular curriculum are better acquired through the project organization and method. Miss Wells followed the policy of selecting in advance the major projects which she deemed most appropriate for each grade and then set the stage for the pupils' choice of these. In carrying over the projects thus selected, however, the play interest dominated in the sense that the major projects were *Playing Families* in the first grade, *Playing Store* in the second, and *Playing City* in the third. These projects became the occasions and the causes for the reading, writing, arithmetic, art, music, industrial work, etc.

In contrast with the major project and the central emphasis upon playing family, store, city, etc., Collings emphasizes beginning with the original purposes or suggestions of pupils and developing these in so far as they are practicable or as they involve possibilities for pupil growth. He divides the school day into Story Projects, Hand Projects, Play Projects, and Excursion Projects. For example, a pupil in the first group inquired why Mrs. Murphy grew sunflowers along the rear of her vegetable garden. This aroused the interest of the group and an excursion was made to the garden for the purpose of interviewing Mrs. Murphy and learning something about sunflowers. After the visit, says Mr. Collings:

"The pupils spent some time in discussing and reading in reference books about the things that they had found out on their visit to Mrs.

Murphy's, such as the uses of the sunflower, its cultivation, etc. They decided to grow some at home the next spring. Carl said that he intended to plant a row on the west side of his cantaloupe patch to protect it from the hot evening sun during the summer. Neva stated that she thought the sunflower was the prettiest flower that she had ever seen and that she was going to grow some in her yard next spring. Dean remarked that he believed that the best use of the sunflower was for chicken feed and that he planned to grow a patch for that purpose. And various other similar remarks were made by the pupils. Each pupil in this connection made a record, with the assistance of the teacher, of his visit to Mrs. Murphy's. The record contained a crayola drawing of the sunflower and a written account of what they had discovered in the study of the sunflower. . . ."

During the study of the sunflower project, the following associated project was suggested by the pupils and selected by them for later study:

How does Mrs. Murphy's sunflower differ from the wild sunflower?
References used by pupils in this project:

Progressive Road to Reading: Story Steps, p. 11
Progressive Road to Reading: Book One, p. 17
New American Readers: Book One, p. 23
Elson Readers: Book Three, p. 45
Brook's Readers: First Year, p. 14
Wheeler's Readers: Second Reader, p. 21
Studies in Reading: Book Two, p. 31
Reed—*Flower Guides* (*Sunflower*)
Comstock—*Handbook of Nature Study*, p. 121
Hodge—*Nature Study and Life*, p. 46
Lantern Slides: "Wild Flower Pictures"
Stereograph Pictures: "Wild Flowers"
Stereograph Pictures: "Yard Flowers" [1]

It is with this type of school organization and method of teaching in mind that Professor Kilpatrick identifies genuine pupil learning and the project method of teaching. In

[1] From Collings, Ellsworth, *An Experiment with a Project Curriculum*, 1923, pp. 51–52. By permission of The Macmillan Company.

his book on *Foundations of Method*, he states in answer to the question, "You defend, then, the term 'project method'?"

"If it is to be thought of as a device for the 'painless putting across' of prior chosen subject matter, no, I abominate it. I saw recently a book telling how to use the project method in religious education that illustrates the wrong use. But if it be thought of as the purposeful way of treating children in order to stir the best in them and then to trust them to themselves as much as possible, yes, I approve it. But the term 'project' must not be allowed to distract attention from the reality back of it. It is the reality and not the name that concerns us." [1]

After emphasizing the point that the essence of a project "is an instance of a purposeful activity" from the pupil point of view, Kilpatrick classifies projects into four groups designed to cover all phases of school life. These four groups are: the Producers' Project, the Consumers' Project, the Problem Project, and the Drill or Specific Learning Project.

As thus conceived the project no longer supplements school learning; it constitutes the whole of school learning. The projects on which pupils engage are consciously exploited to their fullest extent, intensively and extensively, consonant with pupil interests, so as to equip them with all and more of the tools of knowledge which children derive from the conventional curriculum. Thus the project which began as a supplementary activity has expanded into the whole of the curriculum. So, too, with the project as a real life activity. Kilpatrick and his followers insist that a purposeful act is of necessity a real life situation for the child, but that to emphasize the real life character of school experiences is to do violence to children's interests. How-

[1] From Kilpatrick, William Heard, *Foundations of Method*, 1926, p. 346. By permission of The Macmillan Company.

ever real an adult activity may be, when it is externally imposed upon the pupil, it is artificial from a genuinely educative point of view. In Kilpatrick's words:

"I think that what is learned in a life situation has cues and feelers joined to it that promise best for its future use. I think that what is learned from a systematic course in a book is in danger of lacking these life connections and so is in danger of lying idle in the mind when the occasion arises to use it." [1]

At first view, these varied applications of the term "project" are most confusing, particularly since the offspring from each branch of the original family tree tends to claim the exclusive privilege of being known by the ancestral name. We have seen, however, that each has developed quite naturally out of the original conception. For this reason we shall not attempt to arbitrate between them or to arrogate to ourselves the authority of determining which is the legitimate descendant of the original. Our purpose is rather to survey, as we have done, the chief contemporary interpretations of the term in order that with these before us we can turn to the questions: To what in the traditional recitation is the project method a reaction? And what contributions has it to offer to a constructive teaching procedure?

We shall now attempt an answer to these questions.

Bibliography

References for this chapter are listed at the end of Chapter XVII.

[1] From *Foundations of Method*, New York, 1926, p. 357. By permission of The Macmillan Company.

CHAPTER XVII

THE PROJECT METHOD: AN APPRAISAL

In the last chapter we attempted to trace the evolution of the term "project" as applied to contemporary teaching. We found that it applies to three rather distinct types of teaching procedure which are, nevertheless, descendants of a common family tree. These three types we characterized as the supplementary project, the real life project, and the project as purposeful activity. We now turn to the questions: To what in the conventional recitation are these project methods a reaction and what are their contributions and limitations?

From the standpoint of subject matter the project method testifies, first of all, to a changed conception of childhood. When the recitation system originated, the colonial conception of the child as a miniature adult still dominated the minds of pedagogues. If one will examine the pictures of colonial children he will observe, as Parker states, that children are represented "by apparent maturity in dress, expression, and gesture. Either children were so trained and dressed that they actually did appear like miniature adults, or the artist's conception of the child as an adult prevented him from seeing the real child."[1] Alice M. Earle writes regarding Dolly Payne, who later became the wife of President Madison, "Little Dolly Payne, afterwards Dolly Madison, wore long gloves, a linen mask, and had a sunbonnet sewed on her head every

[1] *The History of Modern Elementary Education*, Ginn and Co., 1912, pp. 171–172.

morning by her devoted mother." And she also states that sometimes little girls five years old were bound up in stays "made of heavy strips of board and steel, tightly wrought with heavy buckram or canvas into an iron frame like an instrument of torture." [1] Nor did boys fare much better since, "Little boys five to seven years of age had their heads shaved and wore wigs." [2]

Clothes, in this instance, were merely the outward and visible signs of the adult's conception of the child's inner nature. Since children were considered to be little men and women, they were likewise expected to behave according to adult standards. We can well understand the difficulty this involved for both a child and his elders. Expected as the child was, to measure up to an impossible adult standard, he quite naturally fell from grace; an earnest adult could only conclude, in consequence, that children are born in sin. The obvious remedy seemed to be to break the will of the child and to adhere loyally to the venerable precept in child training that to spare the rod is to spoil the child.

This conception of child life made the function of the school an obvious one. It was to train for adult life. While skillful teachers such as Lancaster might work out simplified stages in learning, so that a complicated process was analyzed into a series of easy stages, the material or the process thus learned consisted of things which grown-ups thought children should learn on the grounds that they would be useful in later life.

We cannot trace here the progressive modifications in the organization of textbooks and courses of study that have taken place in recent years, but investigation of these

[1] Quoted by Parker, *op. cit.*, p. 171.
[2] *Ibid.*, p. 171.

changes would reveal a one-to-one relationship with a growing understanding and appreciation of child nature. The history of all subjects in the curriculum in this respect is similar. They were first introduced into the curriculum because adults realized their importance in the working equipment of adults; they consequently contained information which adults deemed important; and, in the course of years, the material and the organization of this material has been worked over again and again in order to adapt it better to the needs of child life. History, civics, arithmetic, reading, science, all tell the same tale; and the project method, as we suggested earlier in this chapter, represents the farthest point north in the movement toward reorganization and readaptation of school materials to child life.

Take, for example, the subject of civics. This was introduced into the schools for the purpose of preparing children to perform intelligently their duties as citizens. Consequently the texts emphasized what the adult considered essential: information regarding the structure of government and the working machinery of government. That is, since politically minded Americans have traditionally looked upon each boy as a possible candidate for political office, civics teaching was more of a preparation for office holding than for the performance of the more humble but equally basic civic responsibilities.

Townsend's *Analysis of Civil Government*, published in 1868 for use in high schools, illustrates our point very well. The preface to this book states:

"*The Analytic Method* of this work furnishes its first claim of superiority over others as a textbook on Civil Government. The Constitution of the United States is our fundamental law. To understand this law is to understand the whole theory: and to analyze

this is to analyze the entire American System. The proper aim therefore of this work is to present *analytically* the subject of Civil Government as administered in this country." [1]

In the introduction to this text the Reverend James E. Lapham assures us regarding the author's work:

"He has drawn the materials for his work from original sources and from commentaries and from classic excellence. We see traces of interminable rumblings of The Madison Papers, the Federalist, Elliott's Debates, Story and Rawle on the Constitution, Kent's and Blackstone's Commentaries, as well as the most patient gleanings from official statistical and chronological tables." [2]

In contrast with this type of text, let us take the opening paragraphs of a recent work designed to acquaint pupils, through projects and exercises, with the essentials of civics. Its title is significant, "My Community." [3] It begins with the following anecdote:

A traveler in a Southern state stopped in front of a tumble-down country store and spoke to an old colored man who sat on a bench whittling a piece of wood.

"What community is this?" inquired the stranger.

"Community, sah?" said Uncle Mose, "I guess I dunno what you all means by 'community.'"

"A 'community,'" said the traveler, " is made up of people who live near each other in a friendly spirit and generally try to help each other in many ways."

"I understans' now, sah," spoke up Uncle Mose, the light of comprehension breaking out on his countenance, "I understans'. Well sah, dis am no community; dis am jes' a place."

The discussion then proceeds to interpret for the pupil what is involved in the concept community.

[1] Quoted in Stout, J. E., *The Development of High School Curricula in the North Central States from 1860 to 1918*. Supplementary Educational Monographs, No. 3, University of Chicago, p. 182.

[2] *Ibid.*, p. 183.

[3] Hill, H. C., and Sellars, D. H., published by Ginn and Co., 1927.

Geography and science tell much the same story as regards their organization for pupil purposes. Geography, for example, consisted until well into the present of little more than huge compendia of facts arranged in an encyclopedic manner; and the following quotation from an outline of the science work taught in the St. Louis elementary schools in 1870 gives one an idea of the formal character of this study.[1]

NATURE INORGANIC

B. Physics (things considered abstractly as matter, force, and motion).

I. Matter—oral (3d, 5th, and 7th years).
1. Solids.
a. Mineral: (a) metals, (b) stones, (c) earths, glass, etc.
b. Vegetable.
c. Animal.
2. Liquids (nonelastic fluids).
a. Water, quicksilver, etc.
3. Gases (elastic fluids).
a. Air.
b. Steam and vapor.
c. Carbonic acid, hydrogen, etc.

II. Motion and force—oral (3d, 5th, and 7th years).
1. Laws of motion.
2. Attraction of gravitation.
a. Weight and fall.
b. Center of gravity.
c. Specific gravity.
d. Action and reaction.
e. Friction.
f. Inertia.

[1] Parker, S. C., *The History of Modern Elementary Education*, Ginn and Co., 1912, pp. 334–335.

NATURE ORGANIC

C. Natural history.
III. Zoölogy—oral (2d, 5th, and 6th years).
1. Anatomy and physiology.
2. Classification.
a. Vertebrates.
b. Mollusks.
c. Articulates.
d. Radiates.

In contrast with these adult conceptions of subject matter and its organization, the project method centers upon children's purposes and interests as indicators of appropriate school materials. While the project as a supplementary activity does not go so far in this respect as does the project as pupil purposing, there is present in each a genuine respect for the child's point of view. The effort is to see the world through the eyes of the pupil. Frequently the supplementary projects are chosen to offset what a teacher senses to be a failure on the part of "regular" school work to connect vitally with the child's living concerns. If electricity, for example, as a textbook discussion, fails to arouse a pupil's interest, he is encouraged to supplement the text by constructing an electrical apparatus, and thus the principles of electricity gain a reflected importance. The project in this way serves as a connecting link between the school and real life. On the other hand, the project curriculum as worked out by Miss Wells and by Ellsworth Collings takes its start directly from the interests of children. It assumes that these interests and purposes contain all seeds essential for growth and that a discerning teacher can foster the development of spontaneous interests in such a way that the so-called fundamentals of education will develop in a healthier and more vigorous fashion than under

the conventional curriculum. And, finally, the project as a real life activity, which is thereby inherently interesting, recognizes the significance of children's purposes in so far as the projects selected are of such a character that they are real life activities in which children can participate as children.

On the side of method, project teaching of all three types represents a transformation in the psychology of learning. We have already discussed this change at some length in previous chapters and consequently we shall refer to it here no more than in passing. In a rather summary way, therefore, we may state that for the passive conception of learning, in which knowledge is viewed as being conveyed to the mind from without, project teaching substitutes the principle of learning by doing. It realizes that learning is an active affair in which the learner's impulses, interests, and desires engage with the environment as active partners. In this coöperative undertaking it is necessary, on the one hand, for the environment to present itself as a body of experiences organized with reference to the learner's interests and background; and, on the other hand, for the learner to experience a sense of direction so that the activity of one moment derives significance from its relation to a larger context. This larger context the project supplies by virtue of the fact that it presents itself as a job to be done, a problem to be investigated. The end in view is thus present in the early stages of learning; and, in this respect, there is a striking contrast between the project and the conventional assignment which involves a context that too frequently extends no farther than the day in question.

When viewed side by side with the conventional method of organizing subject matter and conducting a class reci-

tation, the project method seems therefore to make several distinct contributions to teaching procedure.

In the first place it suggests a new approach to the assignment of lessons. Teacher planning in the past, as we pointed out in Chapter XIV on individual instruction, has concerned itself primarily with securing a clear vision of what the teacher should do, what materials he should select, what sources of aid he can draw from, largely with reference to his own activity. Individual instruction, in addition to this, calls for an organization of materials and activities with a view to stimulating and fostering a pupil's independent study. To this, the project adds the further suggestion that subject matter and pupil activity must be given a meaningful setting from a pupil's point of view. By virtue of the fact that the project is a supplementary activity, or a real life undertaking, or a vital purpose that relates intimately to a pupil's background and present interests, the artificial gulf between school work and life is bridged. Whether or not a teacher adopts whole-heartedly the project method of teaching, his familiarity with its existence will tend to make him less blind to the values in a significant organization of learning materials. The project as a job to be done, a worth-while task, is something which involves a considerable period of time for its completion, and, consequently, it has a unity lacking in a conventional class-period assignment. The difference between school work of the project type and the usual class assignment is the difference between starting on an automobile trip after a careful study of road maps which reveal interesting experiences in store for us, and embarking on a journey with an older companion who knows in detail what lies before, but who imparts this information only in niggardly daily installments.

The difference in planning which the project involves, as against old methods, stands out clearly in a project discussed by E. A. Hotchkiss in *The Project Method in Classroom Work*. From a silent reading test and observation of pupils' work in geography, the teacher discovered the class was weak in ability to read for thought. Likewise the children observed in a spelling match with another room that they were inferior in pronunciation and articulation. Consequently, the teacher devised a project "which would give a definite goal toward which the children would work with genuine interest; the scope of this project would include definite work, drill, opportunity for organization, and discrimination between principal and subordinate ideas." [1] The project decided upon was a literary contest to be held at the close of the semester, which should involve the special features already pointed out. In preparing and carrying on this contest both pupils and teacher were aware of the twofold purpose in mind, the development of the desired abilities and the winning of the contest. And it is evident that in the drill work and the practice this called for day after day, each day's activity derived meaning from its relation to the larger setting.

A second contribution of the project method is the greater freedom of working conditions which it affords as against the carefully controlled behavior of pupils in the customary classroom. The rigid adherence to a daily recitation schedule involves a machine-like regularity of performance which saps a genuine sense of responsibility. When engaged upon a project, a pupil regulates his behavior by reference to the necessities of the plan under way. His work may carry him to the Library or the Museum, to the City Hall, or his

[1] *The Project Method in Classroom Work*, Hotchkiss, E. A., Ginn and Co., 1924, p. 138.

neighbor's garden. He assumes control over his movements with reference to the inherent necessities of his plans. Thus does responsibility give greater freedom and lessen the constraint and passivity of the traditional classroom.

Closely related to the enlarged plan characterizing the project and the greater freedom and responsibility for self-activity which it implies, is the educative influence of group activities. Many projects, to be sure, may be individual, but on the other hand they frequently involve a class as a whole or subgroups within a class. In such instances they call for the creation of common plans and the coöperative carrying out of these plans, in which individuals learn to adjust themselves to one another and to subordinate their own desires to the realization of the joint project. In such cases the project involves all of the socializing values of the socialized recitation.

We must balance against these contributions of project teaching, certain reservations and limitations, if not positive dangers, which follow from its whole-hearted adoption or its uncritical use. In considering these limitations we shall follow in general the threefold division already indicated: the supplementary project, the real life project, and the project as purposeful activity.

There are two dangers in the use of the project as a supplementary project: it may involve two antagonistic conceptions of learning, and it may fail to integrate the child's education. We will say a brief word regarding each.

It will be recalled that the agricultural project called for the application at home of a principle learned at school. School learning was thus to be given vitality by means of a concrete application in a real life situation. Now, the fact that the project was resorted to in order to reënforce school work was in a sense a confession of the limitations of the

school. And it is a similar haunting sense of incompleteness which animates many teachers in providing for the supplementary project. Thus we saw that in the Open Air Department of the Ethical Culture School, the formal work in English, arithmetic, spelling, etc., has been individualized and reduced to a rather definite drill character, while the free time which a pupil may earn is devoted to a project selected in a field of work that attracts him. The teachers in this school are aware of the dangers which beset them and they provide carefully for supplementing the individual instruction in many ways as well as for motivating it directly. Individual instruction elsewhere is not always so conscientiously safeguarded, and careful observation will convince one that it is decidedly of a treadmill character with very little internal appeal. In such cases, social education is sought for in a program of social activities which run along independently of individual work.

Teachers in the traditionally organized school are likewise becoming conscious of the contrast in pupil attitude between school work and meaningful living out of school, and, consequently, they are devising projects designed to give a reflected glow of reality to "regular" school work. Regular work thus tends to remain artificially related to child life, and the interest which the project enlists may do no more than to postpone a careful overhauling of the course of study and a careful appraisal of methods of teaching. Such projects merely indicate a halfway stage in the reform of teaching. A second step, logically, is to seek, from the child's point of view, a more significant organization of teaching materials. This enhanced significance may be found by reversing the order of procedure: by beginning with a project and drawing out from it the educational principles involved, or the classroom work may

be organized into large units of work of such a character that individual and group activities or projects and drill processes are integral parts or phases of a larger whole.

The second danger in the supplementary project is closely allied to that already mentioned. Since it is supplementary to the main trends of school work it may fail to integrate in any essential respect with this work. Whether or not this becomes an outstanding evil depends, of course, upon a number of factors. There is a temptation to permit the project to degenerate into nothing more than busy work or a species of special privileges granted to such pupils as are competent to complete the regular assignments in advance of their comrades. It thus becomes a type of enriched program insufficiently prepared and planned for. Here again the remedy lies in more carefully integrating projects with regular school work, in such a way that there is in actuality a carefully worked out enriched curriculum for pupils who can profit therefrom.

Early in our discussion of the project, we pointed out the confusion of mind on the part of certain adherents of the project as a real life activity. Thus Stevenson seems to mean by real life at one time an earnest and vivid interest or purpose such as one may possess in real life, and again an actual out of school experience, or an experience within school which is a close imitation of an out of school problem. It is clear that when real life is taken in this dual sense, a project vibrates between the second and the third classification accordingly as the actual life element, or the purposive character is in the ascendency. In either case, ardent devotees of the project are guilty of certain excesses which should be mentioned.

There is first the danger that adult ideas and adult activities will be imposed upon the child under the guise of

introducing him to the real concerns of life. This is done on the assumption that since they are vital for the adult they are appropriate educative materials for children. This is a return to the early conception of education as a preparation for life, although it is not usually stated in the crude form we noted when discussing the organization of early subjects of study. Indeed it is often a crime committed in the name of child life itself.

Thus we find Charles McMurry writing in *How to Organize the Curriculum*, that subject matter should be organized so that it "shapes itself into the child's own thinking and in his developing habits of thought as he receives and appropriates knowledge for his own uses in the natural process of growth. It should not be merely a foreign, external scheme imposed upon the child by authority. At the same time the child's own processes of thinking should conform to and interpret the orderly arrangement of things in the world of nature and of society." [1] In order, however, to be assured that the child conforms to and interprets "the world of nature and of society," McMurry proceeds to select the subject matter of the school and to organize it into large units which he calls projects. Units which relate to social and industrial and economic organizations and institutions, he calls real life projects. And he justifies the presence of these large units in the course of study on the ground that children move without resistance from the projects which they select on the basis of their own felt desires and needs to the "enterprising projects which men, past and present, have found most essential to their welfare and progress." [2]

[1] The Macmillan Company, p. 26.

[2] From *Teaching by Projects*, 1920, p. 4. By permission of The Macmillan Company.

On this assumption that a child's interests will keep step with the evolution of social and industrial institutions, McMurry includes in the curriculum not only the original type of projects such as those in shop and household arts but the large units of study to which we have already referred. His project curriculum is thus made up of shop and home projects, industrial and commercial projects, projects in biography and history, and projects in the form of masterpieces of literature. It will be observed, however, that the last four groups consist primarily of subject matter organized in large units.

Regarding these large units McMurry writes:

"A proper unit of subject matter contains within itself a complete, energetic thought movement because the organizing principle of the topic is such a progressive, self-propelling, purposive idea and demands its own cycle of growth. Give this idea free scope to demonstrate its organizing power, and a strong, complete, well-rounded unit of thought is the necessary result. Burke's speech on Conciliation has just such a simple organizing principle of thought. The building of the Panama Canal rests back upon such a constructive idea or purpose. A railroad system is projected and constructed upon the specific notion of the continuous transport of goods as a means of interchange between given regions. Ruskin's *King of the Golden River* has a developing thread of thought which ties all its parts together into a complete story. The energetic, dynamic quality of the idea, combined with its constructive force in grouping and uniting thought elements, is what makes study a real achievement. Purposeful ideas are such dynamic forces at work in the world, building up industries, shaping institutions, organizing and directing the business of life. Education consists in propagating these world-building ideas in the minds of children. Once planted in the fertile soil of receptive minds these ideas show their full growing energy, their organizing quality and strength." [1]

Of the advantages in this procedure we shall not speak at this point. We heartily grant all of the values which

[1] *Ibid.*, pp. 50–51.

come out of an organization of subject matter around large purposes clearly discernible to the pupils, as against the piecemeal assignments of the conventional textbook type. We wish, however, to point out that we have in McMurry's units of study, a return to Herbartianism and the recapitulation method of teaching, cleverly disguised under the garb of real life projects. A careful reading of McMurry convinces one that he proposes to introduce the child to present-day life, not so much through the exercise of the latter's initiative and originality in the course of working out his projects, as through a progressive revelation of the world. This revelation, however, is to be obtained by requiring the child to relive vicariously the experiences of men who have built up the dominant structures of society. That is, the industrial and commercial projects are considered to be reproductions of ideas which have come to expression in social and industrial institutions. "The world's experience and wisdom are gathered up and organized into these successful projects. They express the growing stages, the actual evolution of the main life processes in a practical world." [1]

No one will seriously question the general statement that the curriculum should acquaint the child with the characteristics of modern life and the developments of society up to its present point. It is indeed the function of the school thus to orient the pupil and to integrate his life with the life of society. It is, however, another question to maintain that this adjustment to present-day life is best secured by having the child in his "projects" reproduce rather literally the stages of past development. It remains to be proved (indeed psychology has pretty well disproven the theory) that a recapitulation of social development is duplicated in

[1] *Ibid.*, p. 4.

the individual's psychological development. To take an extreme case, we do not reach a point where we can enter into an appreciation of Plato's ideas in the "Republic" by reliving the stages Plato passed through in writing the dialogue. We measure up to it rather by progressing through varieties of reading materials from childhood to youth which give us a mental caliber competent to understand Plato. We now know that the best way to understand and appreciate the masterpieces of literature is not to approach them directly, but rather to give the child rich, children's literature from age level to age level, until his mental development is sufficiently mature, and his background sufficiently rich, to enable him to enter profitably into them. For the same reason it is possible that a child will understand the meaning of our social and industrial institutions best by securing his first acquaintance with them through some way other than that of recapitulating their evolution and growth. At all events, we may do violence to child life when we assume that by merely retracing the historical development of a social institution we have psychologized our school material or made it significant for the pupil.

Moreover, this modern adaptation of the recapitulation method has other dangers when followed uncritically. It may become no more than a curriculum device for injecting into the lives of young people an unquestioning acceptance of things as they are; a belief that what has come to be is the best of all possible alternatives. At its worst this type of teaching resolves itself into propaganda on behalf of the *status quo*. Projects of this character are nothing more than clever provisions for having children relive the experiences of others with a view to identifying themselves with the purposes and ideals thus expressed. Under the

caption of projects, or large units of study, the way is opened for introducing into the school whatever replicas of adult society a curriculum making group wishes to cap down upon child life. Education thus becomes a preparation, not for what Kilpatrick calls a changing civilization, but for a smug acceptance of things as they are.

In the list of objectives for composition and literature, which we quoted from Stormzand in Chapter XV, we find a similar concern for adult outcomes, but no implication that these results are best secured through a recapitulatory method of teaching. As suggested before, Stormzand runs counter to his own conception of the project method in including these items as projects. For this reason we shall do no more than point out that it is quite proper under any method to have in mind, in a general way, certain desirable adult outcomes. Some conception of worthy adulthood is necessary in order that a teacher may know what to select out of a child's activity to encourage and develop, and what to discourage or to ignore. Preparation is an essential aim in education, but preparation is best realized by having children engage in experiences appropriate to, and characteristic of, childhood rather than to indulge directly either in pale reflections of adult activities or the actual concerns of adults.

This takes us to the point of view represented in Collings's projects, in which the teacher begins with pupil purposes.

The real life project and the project as purposeful activity involve one element in common. In Professor Bode's terminology they aim at incidental learning.[1] A boy who sets about constructing a telegraphic apparatus is interested primarily in making this transmit messages and what he

[1] From *Modern Educational Theories*, 1927, Ch. VII. By permission of The Macmillan Company.

learns about the principles of electricity in the course of his labors is acquired incidentally. The same is true of the project which follows the pupils' purposes. Thus Kilpatrick writes:

> "We learn better—certainly as a rule—when we face a situation calling for the use of the thing to be learned. Other things being equal, then, we shall try to teach our arithmetic as it is needed; that is, in connection with the situations of actual need. The effect of this will be to find arithmetic in many pieces scattered along the path of life. These we shall teach as we need them." [1]

When learning becomes incidental to other activities and is scattered along the pupil's path of life in the course of his progress from teacher to teacher there is grave danger that no one teacher will assume a responsibility for having him pick up his scatterings and organize them in a coherent system. Moreover, there is the obvious temptation for teachers as well as pupils to subordinate the educational values of a project to its immediate appeal as a living situation or an animating purpose. These reflections on incidental learning require more elaboration.

The philosopher Kant, in laying down the chief characteristics of the moral law, settled upon universal consistency as an outstanding characteristic of right action. Thus, he insisted, if we would assure ourselves whether or no a particular act is morally right, we must ask: "Does this act involve a principle which I can universalize?" "Is it such an act as every one can act upon with similar motives?" "For example, you cannot will that everybody should make lying promises, for if everybody did, nobody would believe anybody, and lying promises would defeat them-

[1] From *The Foundations of Method*, 1925, p. 357. By permission of The Macmillan Company.

selves. A rational being cannot really will a contradiction, and it would be a contradiction to will a lying promise." [1]

It may be we should not insist that adherents of the project as a whole-hearted purposive activity adopt an equally rigid consistency, but nevertheless some degree of consistency would seem to be essential. Consequently it is pertinent to ask, "Just how far educationally will we get if we consistently take the pupil's purpose as our point of departure?"

Obviously, a consistent carrying out of the policy of starting with children's purposes will result in an absence of continuity in the child's education. It may very well be, that a study of why Mrs. Murphy grows sunflowers in the rear of her vegetable garden, quite naturally leads to an investigation of the different respects in which sunflowers differ from the wild flower and this in turn into a study of other flowers; but this merely postpones the eventual question of: What is most worth while for a child to study, and in what sequence must he study? Collings's procedure calls for ruling out those purposes which do not hold forth any possibilities for educative development. Nevertheless, teacher and pupils are continually called upon to select between worth-while purposes. Upon what basis shall they so select?

An answer to this question will make clear the necessity for teacher selection as against pupil selection of educative experiences. It is our contention that there inevitably comes a time when parents and teachers must exercise a guiding and directive function in a child's education. As John Dewey very well says:

[1] Thilly, Frank, *A History of Philosophy*, Henry Holt and Co., 1914, p. 423.

"The proponents of freedom are in a false position as well as the would-be masters and dictators. There is a present tendency in so-called advanced schools of educational thought (by no means confined to art classes like those of Cizek) to say, in effect, let us surround pupils with certain materials, tools, appliances, etc., and then let pupils respond to these things according to their own desires. Above all let us not suggest any end or plan to the students; let us not suggest to them what they shall do, for that is an unwarranted trespass upon their sacred intellectual individuality since the essence of such individuality is to set up ends and aims.

"Now such a method is really stupid. For it attempts the impossible, which is always stupid; and it misconceives the conditions of independent thinking. There are a multitude of ways of reacting to surrounding conditions, and without some guidance from experience these reactions are almost sure to be casual, sporadic, and ultimately fatiguing, accompanied by nervous strain. Since the teacher has presumably a greater background of experience, there is the same presumption of the right of a teacher to make suggestions as to what to do, as there is on the part of the head carpenter to suggest to apprentices something of what they are to do. Moreover, the theory literally carried out would be obliged to banish all artificial materials, tools, and appliances. Being the product of the skill, thought, and matured experience of others, they would also, by the theory, "interfere" with personal freedom. . . .

"It goes without saying that a teacher may interfere and impose alien standards and methods during the operation. But as we have previously seen, this is not because of bringing to bear the results of previous experience, but because the habits of the teacher are so narrow and fixed, his imagination and sympathies so limited, his own intellectual horizon so bounded, that he brings them to bear in a wrong way. The fuller and richer the experience of the teacher, the more adequate his own knowledge of 'traditions,' the more likely is he, given the attitude of participator instead of that of master, to use them in a liberating way.

"Freedom or individuality, in short, is not an original possession or gift. It is something to be achieved, to be wrought out. Suggestions as to things which may advantageously be taken, as to skill, as to methods of operation, are indispensable conditions of its achievement. These by the nature of the case must come from a sympathetic

and discriminating knowledge of what has been done in the past and how it has been done." [1]

The difference between Dewey and the extreme advocates of pupil purposing, as represented by Kilpatrick, becomes clear when we refer to the quotation from Kilpatrick in which the latter states: "We shall teach our arithmetic as it is needed; that is, in connection with the situations of actual need. The effect of this will be to find arithmetic in many pieces scattered along the path of life." Evidently, the piecing together of this knowledge will be left only to a few, since he adds "some of the pupils, particularly the more mathematically inclined, will from time to time, put the pieces together and form wholes more or less complete."

Kilpatrick would develop pupil needs as they manifest themselves in pupil desires. The initiative, in this respect, rests with the child. Dewey evidently believes that the teacher should in certain respects anticipate the child's experience. While he would have the teacher endeavor to organize school experiences in such ways that they involve the native and spontaneous interests of pupils, Dewey would have these experiences planned with reference to the future as well as the present. Of two interests in all other respects capable of worthy expansion Dewey would presumably select the one which has most obvious relations to life connections ahead, and he would deliberately stimulate the formulation of knowledge implicit in an educational experience in order that it might bear rich fruits on the morrow. Kilpatrick, on the other hand, is more willing to let tomorrow take care

[1] Quoted in *Twenty-Sixth Yearbook*, Part II, pp. 173–175, National Society for the Study of Education, Public School Publishing Co., Bloomington, Illinois.

of itself, if only the present is richly developed. He would have children systematize their knowledge "only after the felt need for system had arisen." [1] He believes that gathering the intellectual fruits of learning, as drill, "comes as it properly should, after actual experience has shown its need." [2]

This is, of course, a violent swing of the pendulum away from the conception of schooling which thinks "typically of learning as primarily the conscious and accurate appropriation of fixed-in-advance material set out to be so learned." [3] But just because it is a reaction it involves the dangers of an extreme position. It places the products of a child's learning in much the same position as the colored gentleman's leaky roof which did not require attention in fair weather and obviously could not be repaired at the time when the clouds lowered and the rain descended. There is little evidence to show that children differ so fundamentally from adults that they need not prepare rather consciously for experiences quite clearly in store for them.

That is to say, adult interests, skills, and formulated knowledge should not be artificially pressed down upon child life; but, on the other hand, the realization of this fact should not blind us to the equally significant truth that such needs as the felt need for drill or the conscious need for classified knowledge, like interest and values, are relative. They are relative in the sense that they are the product of two factors, the make-up of the self and the situation in which the individual finds himself.

[1] From *Foundations of Method*, p. 359. By permission of The Macmillan Company.

[2] *Twenty-Sixth Yearbook*, National Society for the Study of Education, Part II, p. 126.

[3] *Ibid.*, p. 144.

Unless the educator anticipates the child's felt needs for formulation there is danger that when the occasion comes for using the products of experience, the child will have ears that hear not and eyes that see not.

We must conclude, then, that to follow exclusively the child's spontaneous impulses and purposes is not to measure up to our full duty as educators. Such a following involves a failure to see that the evil in the doctrine of education as preparation, lies in the type of preparation and the method of preparation it has involved in the past, rather than in the conception of preparation itself. In a very real sense education must be a preparation. The time inevitably comes when the child, no longer a child, enters the real world of adults and lives as an adult. The school and the home must prepare him adequately for this experience. But adequate preparation does not mean of necessity, as we once thought, an inculcation of adult skills and knowledge in ways immediately applicable to adult life. It involves rather selecting educative materials which appeal to the interests and abilities of children and organizing them with reference to children's capacities. The goal is worthy adult life; the method is the method of child development.

The conclusion seems to be that real life activities and pupil purposes are both indispensable for educative purposes, and that both real life and child life must interrelate if we are not to do violence to the needs of education. The parent and the teacher cannot escape from the responsibility of guiding the educative process. Their superior knowledge requires that they organize child experiences with reference to the needs of life, but in teaching and selecting educative materials they proceed in the light of the very best available knowledge of the

characteristics and tendencies of child life. Social vision and idealism will assist them in determining what are the most worth-while things with which to have children occupy themselves, and psychology will guide them in professionalizing the subject matter of education.

To the pupil's purpose for undertaking a project or a school exercise, then, we should add the teacher's clear vision of the educative function of this activity. There will thus be two purposes working in harmony: the pupil's reason for the project and the teacher's plan for having him undertake it. In the beginning it may be legitimate for the child to sense nothing more than the most obvious and immediate appeal, but the teacher should have in mind the ultimate revelation or the deduction of certain specific and definite educational truths which may function not merely in this one project but which will apply to a multitude of future situations. The project should light up large areas that were formerly, when superficially viewed, unrelated to the project.

An illustration may indicate this educational function of a project. The writer knows of a manufacturer of paints used for interior decoration. As a manufacturer he is very successful because he has developed shades and tints which are richer and more delicate and in manifold ways superior to those of his competitors. This concentration upon greater perfection in color effect has led to his study of pigments, but his study of pigments has not remained on a practical level. He has gone into the theory of pigments and he is now recognized by chemists as one of the world's leading authorities in the chemistry of pigments.

This interest in colors takes him into other projects. The whole problem of color photography has interested

him and he has made distinct advances in this field. Problems of lighting in the taking of uncolored pictures have likewise beckoned him and he has succeeded in taking unusual pictures on rainy streets at night.

In this illustration we may see the creative possibilities of a genuine project. It is an activity in which one engages for perhaps a variety of reasons, but in the course of which an educational principle is revealed. This principle serves to throw light upon a second problem and this again, in the course of its solution, yields a product which leads one on into new fields. The teacher cannot foretell in detail, for each child, just what principles will be revealed, but he should plan deliberately for some, and stimulate the development of others, when opportunities make possible so doing. As we proceed from the primary grades to the high school it is doubtless true that the project, both as regards curriculum organization and method of teaching, will fail increasingly to meet educational needs. It serves, however, as a most suggestive basis for new educational procedure and we should utilize its positive contributions.

Not all teachers of the project as purposive activity rest content with incidental learning of the type thus far criticized. Many attempt to use the project as an instrument for a very self-conscious kind of incidental learning. Thus Miss Wells drew out from such a project as playing store, a considerable amount of acquaintance with arithmetical processes and other fundamental operations. In such cases the teacher deliberately exploits the project so that pupils will master the "common essentials." The endeavor is to develop such an appreciation of the relation of the fundamental knowledges, skills, habits, etc., to the project that the need for their mastery becomes prominent.

There is no doubt but what fundamental processes thus motivated are given an appropriate setting, and it may very well be argued that unless school materials can be given such a meaningful setting, their learning value at the time of presentation is questionable. However, one cannot read the descriptions of many projects or observe a great deal of this correlated teaching without becoming convinced that frequently the so-called correlation is more evident to the teacher than to the pupils. There is, in short, much straining to bring forth a mountain, which succeeds only in producing a gnat in the form of pupil motivation. The radiations from the projects in the way of subject matter excursions are only artificially related to it in the pupil's mind, and an outsider wonders whether equally good, if not better, results might not follow a more direct organization of teaching procedure which is nevertheless equally sensitive to child life. In tying up all formal education to projects in this manner, there is danger of overcomplicating the unit of learning; and, whereas the daily recitation errs in breaking assignments up into such small divisions that all meaningful relationships are lost, the project method often errs in presuming too great a capacity for unification and relatedness on the part of the child, with the result that he becomes lost in a wilderness of correlations. If the project teacher is really sensitive to child needs he will realize that the desire for change, for disconnectedness in the form of variety, is also a fundamental requirement in childhood. He should not permit his reaction against the old type of formal teaching to lead him into an excess of good intention so that he adopts the equally false position of insisting that children learn only by indirect means.

It would seem, in the light of our discussion, that the project method, while extremely suggestive both as a

method and as a system of organizing the curriculum, nevertheless reveals serious limitations. The project as a supplementary activity is in danger of maintaining an unfortunate divorce between two methods of teaching and two systems of organizing subject matter; while the real life project and the pupil purposing project suffer each from an excess of enthusiasm.

Thus we conclude that the project method, supervised study, individual instruction, and the socialized recitation, are not sufficient unto themselves alone. It is now our task to undertake to piece together the contributions in these various methods with a view to securing a more comprehensive survey of a teaching procedure in which the methods thus far discussed may be seen to fit as essential elements.

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PART IV

ESSENTIAL PHASES OF A TEACHING PROCEDURE

CHAPTER XVIII

SOME ESSENTIALS IN TEACHING SUGGESTED BY THE METHODS DISCUSSED

Human beings seem to have a propensity for diagnosing human ills in terms of one cause and seeking a remedy for these evils with one prescription. This is a tendency by no means confined to the uneducated. Was it not the learned Bishop Berkeley who wrote *Siris*, or, *A Chain of Philosophical Reflections and Enquiries Concerning the Virtues of Tar-Water and Divers Other Subjects Connected Together and Arising from One Another*, just as it was an untutored frontier druggist who, according to Carl Sandburg's *Abraham Lincoln*, advertised in Springfield, in 1849, that Dr. Keeler's Panacea would cure all ills including "constitutional debility, mercurial and hereditary dispositions," etc.?

So with teachers. Too frequently an enthusiastic adherence to one method blinds teachers both to the limitations of their favorite instrument and to the virtues in other procedures. Educational theory and practice are, however, uncertain and more or less chaotic at present and it would seem to be a sensible policy to imitate those politicians who in legislating borrow freely from the opposing

party's platform. Rather than to insist that a teacher adhere rigidly to a method which corresponds to a definition of the project method, individual instruction, socialized recitation, supervised study, or the like, we would do better to scrutinize each of these with a view to determining what may be its unique contributions. By so doing we may discover that in a complete sense the term "method" might better be applied to a comprehensive procedure which employs at various stages some features present in one or more of these so-called "methods."

With this purpose in mind it may be well to glance at some essentials in teaching which are suggested by an examination of the methods thus far discussed.

1. *Identification of the pupil with the purposes of the school and the classroom.*

The first of these we may characterize as an identification of the learner's will with the purposes of the school and the expressions of these purposes as revealed in the tasks of the schoolroom. By this is meant that the racial and community inheritance which we wish the young to make bone of their bone and flesh of their flesh cannot be impressed upon them from without. It must rather be appropriated by them as an indispensable means of interpreting and broadening the range of their present experience.

As we have seen, the project method contributes two significant suggestions for teaching method in this connection. It strives to relate the child's school experience to his immediate interests and background, and it stages, consciously, his present action in a larger context of significance and meaning. Traditional procedure fails in both these respects. The very word "assignment" suggests a task imposed, something to be done without reference to felt needs, and in no sense an activity undertaken volun-

tarily. Only in the schoolroom have we expected human beings to work industriously at something the worth of which must be taken wholly on faith. All serious human activity, which grips one at all, overflows the present moment. Even the deadly routine labor in which many people are forced to engage derives some significance as means to other ends. When it fails to glow from this reflected light it becomes unbearable, if not degenerating. The overworked housewife who drudges throughout endless days washing the same dishes, sweeping the same floors, laundrying and patching the children's clothing, cooking three meals in dreary rotation, relates these tasks to daily and weekly plans and these in turn to some larger ideal such as providing a worthy home for husband and children. When she cannot read meaning into the details of her life, disaster follows for herself and her family. The "hands" in factories and shops who succeed in preserving balance and sanity and "well-regulated lives" can only do so by integrating the products of their work with other plans and ideals which serve to give vitality to what would otherwise be a meaningless and demoralizing existence. Psychologists and sociologists have shown conclusively that mental and moral decay are inevitable outcomes when one's daily occupation reduces itself literally to effort for effort's sake.

2. *Organization of school experience with attention to "associative learnings."*

The task upon which one labors, to be educative, must grow out of a present concern and fit into a larger plan. This is a first essential. But educative activity involves a second requirement. The parent and the teacher, in planning for children's experiences, must have in mind results which naturally accrue as by-products to the main

activity. They must also provide for what Kilpatrick calls associative learnings. As he very wisely remarks:

"Learning is never single. We cannot start a child to working at any one thing and suppose that he learns just that one thing. The facts are quite otherwise. While a child is memorizing a poem, for example, he is building—and of necessity must build—attitudes, favorable or unfavorable, toward the particular poem, toward poetry in general, toward teacher, toward the teacher's way of managing, toward school, toward his own future education, toward matters of the intellect in general. He is learning, well or ill, positively or negatively, to coöperate with his fellows in respect to teacher and with respect to law and order in general. In like manner while he is studying "composition," he is learning not only about margins and punctuation and the like. He is at the same time building in himself attitudes which will help to determine whether in the future he *will* or *will not* use proper margins or punctuation, *will* or *will not* write neatly and accurately, *will* or *will not* write at all beyond the barest minimum of social or business compulsion." [1]

These associated learnings are, of course, most numerous and varied in character. They will include such matters as the influence of the physical features of a room and the unanalyzable qualities and influences of a teacher's personality. Some cannot be directly and consciously planned for, but many can be more directly aimed at than schools have been in the practice of doing. A concern for their influence means that in organizing his subject for teaching, a teacher will have in mind the integration of a pupil's personality as well as a logical and a coherent organization of a branch of knowledge. It means, moreover, that teachers will think through their subject matter with reference to the age level of their pupils and select the materials of teaching with regard to these facts. And it also means that

[1] "Statement of Position," *Twenty-Sixth Yearbook*, National Society for the Study of Education, Part II, p. 124.

teachers will sense the importance of providing for classroom activities in the process of learning which will bring into play and develop those habits and ideals of group relationship which advocates of the socialized recitation seek to realize. This method, as we saw, endeavors to organize the life of pupils within the classroom so that they will cultivate attitudes and methods of work which will function in their home and community relations. It seeks to develop social attitudes, sensitiveness to group standards, and the habit of regulating self-directed conduct with reference to the ideals and standards and needs of one's fellows. It seeks, in short, to stimulate the growth of qualities of fellowship, sympathy, tolerance, and appreciation, as well as capacities for leadership.

3. *Consecutive and progressive growth.*

A further essential in education is the planning and the organization of educative experiences in an ascending series. One of the chief tests of an educative experience is whether or not it leads to activity on a higher level. This involves not merely providing richly for pupil experience in the present, but likewise anticipating in a measure the needs and the interests of children.

In our discussion of the project method and the socialized recitation we saw that both center upon pupil initiative. The followers of Kilpatrick, in particular, emphasize the necessity for whole-hearted purposing on the part of the pupil and they make this their main point of departure. Likewise in the socialized recitation, to the degree that teachers encourage pupils to decide what aspects of a subject they will study, they quite obviously relate new experiences vitally to present interests and background. In our criticism of these methods, however, we pointed out the dangers involved in following too literally pupil purposing.

No one would suggest that a mountain guide, who is conducting a party of inexperienced travelers, should determine upon alternative trails by means of a referendum of his patrons. He could only venture to do so, at least, if the different routes were equally safe and held in store for his party equally attractive prospects. The same is true in education. Exclusive following of pupil purposing is in danger, not merely of sacrificing consecutive growth on the part of pupils, but of encouraging pupil choices in fields where there is an inadequate background for choice.

Take, for example, the teaching of history. In his book on *Education for Moral Growth*,[1] Dr. Henry Neumann mentions several aims that should dominate history teaching. He contends that a study of history should give the student an understanding of the operations of social heredity so that he comes to see the present as the result of the past and develops the habit of scrutinizing factors operating in the present with a view to determining their probable influence upon the future. A second purpose which he mentions is to develop an appreciation of the duty of progress. "One of the aims of history teaching," he states, "should be to show how man has improved upon his customs and institutions, and to encourage the conviction that further change is desirable and possible." Still a third motive in history teaching should be the endeavor "to educate a generation that will want to be utterly fair in its judgments."

Now a realization of such aims does not require organizing materials and planning methods of procedure which are alien to pupil interests. Indeed it requires centering upon these very directly, but it calls at the same time for a selection and a working over of materials with reference to ends which lie beyond the immediate horizon of pupils.

[1] Published by D. Appleton and Co.

If certain applications of the project method and the socialized recitation err in following pupil purposes uncritically, individual instruction, as we saw, makes the mistake of predigesting too carefully for the pupil the materials of instruction. The result is a rigid progression and a consecutiveness in procedure which snuff out pupil initiative and pupil planning, reducing studying to piecework performance. Growth comes with sensing problems and seeking their solution; and one of the conditions for a problem to sprout is provision for individual variation and experimentation.

Perhaps one of the best statements which avoids the difficulties in each of the two extremes we have been discussing is that of William Burnham on the basic conditions of mental health. He states:

"What are the minimal essential conditions of human happiness? Reduced to their lowest terms, what are the fundamentally essential conditions of mental health—conditions universal for all, young and old, rich and poor, the educated and the uneducated, the different emotional and ideational types, the individual with robust health and the invalid alike? On the basis of observation and many investigations, the answer may, I think, be formulated very simply as follows: The essentials, without which a person cannot be quite sound mentally and with which, apart from accident, infection, or heredity, one can have no serious mental disorder, the absolutely essential conditions are three: a task, a plan, and freedom." [1]

A task does not preclude pupil purposing. Indeed a task voluntarily assumed may very well imply an identification of one's purpose with that of another. An apprentice working with a master craftsman accepts a task because he senses its value and because he recognizes the superior judgment of the master with whom he is learning

[1] *The Normal Mind*, D. Appleton and Co., 1925, pp. 207–208.

his trade. Likewise, a plan which the pupil helps to formulate involves freedom within which to discover one's own method but it is not inconsistent with profiting from the experiences of others. A task, a plan, and freedom, in short, make possible the appropriation of racial experience in an individual and distinctive manner.

4. *Conscious provision for developing working tools and methods of procedure.*

A task, a plan, and freedom, moreover, do not rule out provision for a further essential in educational procedure: the acquisition of "common essentials" in knowledge and the mastery of fundamental tools of learning. It is true that in actual practice many adherents of the project method and socialized activity, in their whole-hearted adoption of pupil planning and freedom, have neglected a necessary concentration upon thoroughness. The teacher's anxiety to bring real life activities into the schoolroom has led frequently to the banishment of all routine and formal activity. That is, in a desire to have natural conditions prevail, teachers have scorned the acquisition of basic skills and techniques which are the first conditions of this "natural" activity. A saner procedure is to place drill and the attainment of skill in their proper context. Once the purpose of skill is realized, and children are given an opportunity to measure their progress in the acquisition of skill, it takes on vitality. Who has difficulty in persuading the prospective pitcher of a school baseball team to practice on speed and curves?

The truth of this point of view is well illustrated by an incident in the Walden School of New York City. A class group in the upper grades was preparing to publish a book. When the children's papers were turned in for this purpose, the teacher drew attention to the lamentable

status of spelling. The reputation of the class seemed to be at stake. How could they publish a book abounding in gross errors of spelling? How could they correct proof for the book if they could not distinguish between correctly and incorrectly spelled words? As a means to offset this situation the children in the group decided to concentrate upon the study of spelling. Voluntarily they turned themselves into an old-fashioned spelling class. Spelling books and spelling lists were accumulated. They gathered their materials and they organized their drills. They spelled orally and they spelled in writing. They staged old-fashioned spell-downs and they tested themselves with modern spelling lists. They devised schemes for sustaining interest and thereby succeeded not only in meeting the immediate purposes of bettering their spelling, but developed as well an interest in spelling for spelling's sake.

Supervised study and individual instruction are alike in that they concentrate attention upon the ways of the learning process. Individual instruction in particular emphasizes the need for mastery on the part of each pupil of the information and the processes peculiar to each subject matter field. There is therefore a place, a very much-needed place at present, for these outstanding contributions of individual instruction and supervised study. Working conditions must be provided and planned for so as to insure attention to individual needs and individual progress. Individual needs, however, may take a variety of forms. They are not adequately provided for when each pupil merely advances at his own rate. They call at one time for corrective teaching at a critical juncture; at another for supplementary activities or an enriched program. And they imply for all pupils that teachers check

up the work of each student in such a way that mastery of learning products and thoroughness of education are assured.

Our category of working tools and methods of procedure should include more, however, than the usual list of study habits and skills. The ability to proceed independently, to acquire progressively a capacity to go it alone in a field of knowledge, is a final outcome that each teacher should endeavor to have his pupils strive toward. This involves the employment of the skills and techniques already referred to, but it implies in addition the organization of these into systems of efficient procedure. This outcome is the result, in part, of the motivation we have already discussed; but it is also the outgrowth of careful practice over a long period of time in summarizing and organizing knowledge.

We do not have in mind at this point the ability to pass conventional examinations of either the new or the old type. Indeed the emphasis in American schools upon tests and examinations has done much to divert attention from the acquisition of the educational product for which we are pleading. We refer rather to the ability to look back upon a unit of work and to see it as a whole and to appraise the educational values implicit within it. And we refer to the progressive ability to go it alone in a subject matter field so that the culminating stage of secondary education may be marked by the ability to employ independently the historical method, the scientific method, the mathematical method, etc. The first approach to this ideal can be made in the elementary school when pupils are encouraged to talk over a project completed or a piece of work previously engaged upon with a view to determining what it has contributed in the way of useful knowl-

edge and procedure for future undertakings. With increasing age pupils can keep both class and individual records of progress which call for summaries and appraisals at natural articulation or concluding points. Thus will they be aided in developing not merely the habit and the ability to scrutinize their work with a view to gathering intellectual products but of examining their methods of work for the purpose of directing and controlling these methods.

5. *Planning for and encouraging critical thinking.*

The stimulation of original and critical thinking on the part of the pupils may very well be regarded as one of the supreme purposes of education, if not the chief one. It is mentioned last because its most effective functioning is dependent upon laying a sufficient basis for its operation in the way of both information and methods of procedure. Thinking, as we conceive it here, may consist of drawing out from an educational experience the principles of knowledge implicit within it. In this sense it is the culminating stage of the organization advocated under the previous heading. But thinking also involves a creative experience, a leap into the unknown, a drawing of new conclusions from old data, or seeing the necessity for searching out new data to sustain old conclusions. It is in this sense that Professors Bode and Dewey speak of thinking as the transformation of the life of the learner. Well-directed questioning which requires the pupil to put together in new systems material previously acquired or class discussions of problems raised by pupils and teachers, followed, when necessary, by further study and investigation, are some of the means appropriate for the purpose of arousing and fostering original and creative thinking.

These, then, are some of the outstanding essentials in

teaching: (1) Organizing and motivating the work of the schoolroom so that pupils identify themselves with it by virtue of the fact that they appreciate its significance and worth; (2) planning pupil activity with due regard to the associative learnings which inevitably cling to or accumulate about a major activity; (3) planning and organizing school experiences so that they are interrelated and consecutive and represent a progressive ascension from one stage of growth to another; (4) providing carefully for the mastery of working tools in the form of common essentials of knowledge and habits and skills, and also for a steady development in ability to synthesize and organize one's educational experiences; (5) careful attention to the creation of conditions and providing occasion for critical and original thinking.

This list of fundamentals in teaching may not be complete, but one may be assured that if he undertakes to realize them in his contacts with his pupils other essentials will be added.

For the pupil, the realization of these aims calls for his progress through a progressive series of worth-while undertakings; worth while, as he senses them, in themselves and worth while because they yield constantly valuable and significant by-products. On the part of the teacher, they involve careful preparation prior to actual teaching, conscientious guidance of the learning process, and deliberate efforts to capitalize, for the pupil's benefit, the results of teaching and learning.

As thus enumerated, however, the precepts mentioned remain abstract and general. It will lend concreteness and definiteness to our discussion if we can amplify and illustrate them by concentrating more specifically upon the different phases of the teaching process in which each

is particularly applicable. For this reason we shall attempt to view teaching somewhat more closely at three different stages in the teacher-pupil relationship: the period of planning and the "assignment," the working period, and the socialized period.

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CHAPTER XIX

THE LESSON PLAN AND THE ASSIGNMENT

In our discussion of the Herbartian lesson plan in Chapter II we referred to the fact that it tended to formalize teaching procedure. A genuine adherence to the Herbartian theory would have required the planning of instruction with reference to individual differences and backgrounds; but Herbartian method, in practice, concentrated upon teacher planning with reference to group progress. Carefully arranged questions were designed to call up similar ideas in the minds of children and uniform assignments aimed to generate common conceptions. This concentration upon teacher planning from the standpoint of the teacher's activity, combined with the daily recitation method of teaching, has frequently caused teachers to neglect planning their assignments so that they become meaningful learning units from the pupil's point of view.

The present chapter attempts to discuss a few things involved in a teacher's preparation when he concentrates upon providing for meaningful pupil activity.

In the first place, it calls for a changed conception of what constitutes subject matter for teaching. In our traditional thinking we have tended to consider subject matter and method as quite independent of each other. The proof of this statement is the existence of "methods" courses in teacher-training institutions which are carefully distinguished from content or "subject matter" courses. The assumption seems to be that subject matter is a body of knowledge that exists by itself without reference to

any particular purpose of organization, and that method is a way of proceeding without regard to any specific subject matter. The practical result of this divorce between subject matter and method has been a general disrespect on the part of subject matter specialists for courses in methods of teaching. They have felt that all that is essential for successful teaching is "to know the subject," and that given this knowledge the actual practice of teaching will take care of itself. And, since teachers who have been weak in their knowledge of the subject but well drilled in "method" have not been particularly successful as teachers, there has seemed to be just grounds for this view.

When lesson planning is seen, however, to be concerned with the organization of teaching materials and pupils' experiences with reference to certain desirable ends, subject matter and method can no longer be conceived of as two separate matters but must be regarded as two aspects of one and the same thing. They are as intimately related as are the inside and the outside of a bowl. What we have called subject matter, in the old sense, is nothing more than raw material for teaching. It is the ore that has not yet been worked over in such a manner that it can function as a tool. Its existence is, of course, absolutely essential; but it is not, in its raw state, relevant to teaching.

Edwin W. Pahlow has illustrated our point by stating what is involved in a history teacher's knowledge of his subject. He writes:

"Of course, teachers should know their subject, but how? For what purpose? The average American college teacher does not and probably could not teach his course on the level of a Harvard or a University of Berlin seminar. Why should he? He is not conducting a seminar; he is teaching on the undergraduate level, and he knows

his subject, at least in most of its phases, only on that level; in other words, he knows it in terms of college undergraduates. Well, the high school teacher is teaching on the high school level—a level further removed, especially in its lower ranges, from the college than the college level is from the seminar—and that is the level on which he needs to know his subject. This does not mean that he need not know more than the high school graduate; he ought, of course, to know what history on the college level is like, just as the college teacher ought to know what history on the seminar level is like. But, whatever else he knows, he must know his subject in a manner to meet the comprehension of high school pupils. This involves an acquaintance with and an appreciation of a wealth of literature in prose and verse and a wealth of illustrative material—maps, charts and graphs, pictures and models—much of which is never heard of in the college classroom and some of which probably would not be tolerated there." [1]

In recent years educators have adopted the phrase "professionalized subject matter" to designate subject matter organized in terms of teaching purposes. It is obvious that a preparation for the teaching of subject matter, so conceived, calls for very careful thinking on the part of a teacher prior to assigning work to his class. Accordingly we now turn to an enumeration of some of the most important steps in this process.

It requires first that a teacher, before he meets with his class, survey his subject matter field with a view to organizing and selecting the materials of the course which he will use. This involves deciding upon the information his pupils should acquire, but it is never merely a matter of pages in a textbook. In addition to bare information it should include some idea of the ideals, the attitudes, the dispositions, and the conceptions and principles to which this information may lead. And thirdly, it should include

[1] "The New History Teaching," *The Standard*, Vol. XII, p. 104 (December, 1925).

a list of working habits and procedures which the pupil's study may serve to develop. In short, this preliminary survey of the subject functions as an inventory of what the pupils may be expected to realize out of their contacts with it.

The second step in the organization of "material" for teaching purposes is the translation of the aims discussed in the previous paragraph into learning or pedagogical units. The character of these learning units is not necessarily that of a logical organization of subject matter. Indeed it will not be, except perhaps on the higher levels of secondary and college education. If one keeps his eye upon the psychological principles of learning, he will see that the organization of subject matter and its acquisition by children will assume different forms at different ages and under different conditions. The early years of childhood are peculiarly, but by no means exclusively, adapted to experience getting. No one should desire a child in this period to secure his knowledge in logical and abstract parcels, or to formulate scientific deductions from his experience. He will generalize crudely and of his own initiative. It is requisite, however, that he have ample facilities for exploration and investigation, manipulation and construction. In the early years of the elementary school, the more concrete and "natural" his environment the better. These are the years when he should make his acquaintance with tools, with brush, and with pen. There should be no dividing line between reading, writing, figuring, and his work with things. His undertakings should gradually involve these "fundamentals," and they should serve merely as tools for his various individual and group undertakings. This is preëminently, therefore, the stage of project teaching. Gradually, there comes a time when

it becomes clear to the child that he must know how to handle these tools more effectively, and they then become more definitely and specifically subjects of study on their own account. Moreover, children's interests soon become involved with what the school has conventionally termed subject matter. When this stage is reached, as it will be in the upper years of the elementary school and particularly in the junior high school, it may be better to think of school experiences not so much as projects, but rather, in the terminology of Professor Morrison, as units.

These units should continue to have a concrete and definite character but, at the same time, they should be so organized as to result more specifically in the formulation of principles of knowledge, or the development of more tangible appreciations, habits, skills, and the like. By the time the senior high school is reached pupils can be expected to adapt themselves to the conventional theoretical and scientific organizations of the various fields of knowledge.

The unit is thus intended to contrast both with a daily assignment and with a topic, or information of a ground-to-be-covered character. It contrasts with the daily assignment in that, like a topic, it is a division of a subject which is attacked as a whole; it is something to be mastered which requires time and the budgeting of time. On the other hand, it is more than a topic, or an organization of subject matter, in that it concentrates upon a change in the pupil, an understanding, an appreciation, a skill, or the like.[1]

[1] For a fuller discussion of the unit we must refer the reader to Professor Morrison's book, *The Practice of Teaching in the Secondary School*. While the writer believes the psychological distinctions which Professor Morrison makes between the science type and the appreciation type are not tenable, he believes, nevertheless, that the methods suggested are most significant.

This last point is peculiarly important and is one of the unique contributions of the project to subject matter organization. Both courses of study and teachers' plans have hitherto confined themselves too exclusively to an organization of the subject for teaching purposes, and have neglected what the pupil should do in order to master the subject. The project is a pupil activity and the unit likewise should include what the pupil is to do. The unit may be called "The Industrial Revolution," or "Oxidation," or "The Angle," or "The Cell," but unless the planning of the unit includes specifically what the pupil is to do in mastering the unit, it remains subject matter alone. In teaching the Industrial Revolution, for example, the teacher must ask himself, "What conceptions of the Industrial Revolution can my pupils secure?"

When this is thought out rather clearly and definitely with due regard to the age of the pupils, he further inquires: "Now, then, what reading should they do?" "What specific things shall I ask for in the way of summaries, outlines, etc.?" "What problems can they center upon particularly?" "What supplementary projects, what additional problems and reading shall I have ready to suggest for pupils with special interests and abilities?"

Only after these questions are answered, have we a statement of the unit as a *teaching* unit.

What we are suggesting as an indispensable phase of planning prior to teaching is now being done to a consider-

It will also be apparent to a reader of Professor Morrison's book that the writer is heavily indebted to Professor Morrison's science technique. This consists of five stages: exploration, presentation, assimilation, organization, and recitation. We believe, however, that his procedure is in grave danger of becoming too formal (particularly in the presentation period) and consequently a more flexible procedure is here suggested. We should be delighted if we are instrumental in sending readers of this book to the more comprehensive discussion in Professor Morrison's work.

able extent by groups of teachers in working out courses of study. We may take, for purposes of illustration, the revision of the courses of study in Denver. These follow rather closely the unit system of organization. The seventh grade work in General Science, for example, consists of six units: the Sun's Gift of Heat, the Air We Breathe, the Waters of the Earth, Weather and Climate, How Fuels Serve Man, Science in the Household. The work of each unit centers upon the answer to a number of practical problems. Thus Unit I is introduced with the problems:

1. Why does the fire burn more brightly when the draft is open?
2. Why do trees, grass, and flowers grow only in summer?
3. What keeps our bodies warm?
4. Can we have heat without fire?
5. Are there places where it is always summer or always winter?
6. Why does the window pane remain cool when the sun shines through it?

The answers to the problems thus suggested lead naturally into a number of topics which are analyzed in some detail for the teacher's benefit. The topics considered under the unit we are discussing are: Combustion and Oxidation, Measuring Heat, Transfer of Heat, Effects of Heat, Heating our Homes and Public Buildings, Conservation, Heating Effects of Electricity, the Earth Heated by the Sun. The outline of the unit further provides suggestions for some twenty-two demonstrations and projects which tie up with the topics and the solution of the major problems. Moreover, there is a long list of suggested topics for individual and group study designed to enrich the work of the unit and to provide for individual differences in needs and interests. The outline of each unit concludes with a statement of outcomes which can reasonably be expected of pupils.

Now, what Denver has done in the way of group planning, each teacher can do for himself with special reference to the peculiarities of his own situation and the needs of his own class. The Denver outlines are valuable because they are the pooled judgments of experts and trained teachers. This group planning cannot, of course, be used entirely as a substitute for individual planning; although when consulted and studied by a teacher, it undoubtedly enables him to raise the level of his teaching higher than he could by going it alone. We have referred to it here merely to indicate the general lines of procedure which each teacher should follow in planning for his classroom work.

A variety of factors will enter into and determine the organization of what we have called teaching units.[1] A few may be briefly mentioned. For convenience we shall discuss them under two general heads: academic factors and social-moral factors.

The teacher's knowledge of the background, preparation, special interests, and needs of his class constitutes one large group of factors determining the selection of materials for units of teaching. Scientific research is daily placing at the disposal of teachers new instruments for intelligently appraising the academic status of his class. For example, administering a pre-test before taking up a topic will reveal in a supposedly homogeneous group wide variations in knowledge and ability which will, of necessity, have a bearing not only upon what all pupils are expected to do in common, but how individual differences will be provided for.

In an interesting article entitled "Twice-Told Tales, or Tautologous Teaching in Higher Education," [2] Dr. D. A.

[1] This phrase is borrowed from Professor H. C. Morrison.

[2] Chapter V of *Research Adventures in University Teaching*, by S. L. Pressey, L. C. Pressey, and others, Public School Publishing Co., Bloomington, Ill., 1927.

Worcester reports the results of several pre-tests given to students in beginning sections of Educational Psychology in several teacher-training institutions. In one class of 185 students a final examination in the subject was given during the first week of the course. "The test was objective and consisted of 90 exercises." The students "averaged 40 points—a score certainly suggesting some previous contacts with portions of this subject-matter. Eight of the students (4 per cent of the class) made a score at the beginning of the term in excess of the mean for the class at the end. Two of these early scores exceeded the 85 percentile of the final distribution. One might well ask why the two students receiving these scores should be required to take the course."

Similar results will be discovered if classes in history, science, and even mathematics in the elementary and secondary schools are tested before a topic is undertaken. Work which pupils have done in other schools, differences in home reading and training, the knowledge which a repeater has of certain sections of the course he is going over for the second or third time, all function to create significant differences in background and preparation; and, when pupils discover that what they already know makes a difference in their school progress and the way in which they are dealt with in class, their unsupervised reading and study and their out-of-school experiences may take on a significance that has hitherto been lacking.

The major point we wish to emphasize here, however, is that a preliminary examination of what pupils know or do not know, what they can do or cannot do, supplies indispensable grist for a teacher's mill. If the class is deficient in the requisite information bearing upon a new unit of work, or if it cannot use effectively the tools of the subject, the work to be undertaken must be organized so that

appropriate tools can be forged and the needed information supplied. If certain pupils excel others in these essentials, they are entitled to supplementary assignments of an enriched character or to be excused from certain aspects of the work. On the other hand, if some are deficient in knowledge or methods, remedial treatment will have to be devised for them. If vocabulary difficulties are encountered, special attention to vocabulary development will have to receive attention. And all of these facts will assist a teacher in deciding what to include in his units, how he will present a unit to a class before it begins work upon it, and how he and the class will proceed in the course of studying the unit.

The preliminary testing and diagnosis thus far referred to may seem to emphasize unduly formal testing. It should not emphasize formal testing exclusively; and on occasion it will not emphasize it at all. From work on a preceding unit, or from his general contacts with his class, a teacher will come to know, frequently, the interests and needs of the individuals in his group. However, it is not always safe to rely upon informal knowledge, and diagnostic testing should be resorted to frequently, if for no other purpose than to confirm general observation. Perhaps the term "systematic testing" better expresses what is meant by preliminary testing—systematic testing that may be informal or formal but leaves little to chance. The method followed by the English department in the University of Chicago High School for determining pupils' reading interests is systematic in this sense. There is kept on file in the department a record of what pupils read in connection with courses given; also, at stated intervals, pupils indicate what reading they have been doing of an unsupervised character. The pupils know that this record is not used for grading

purposes. The instructor, however, secures from it a picture of the developing interests of his students and he can detect the influence or the lack of influence of school work upon their lives. He is in a position to suggest reading that may progressively refine a crude interest or discretely bring needed forces into the life of the boy or girl.

The observation and study that a teacher makes of his pupils should not be confined solely to their academic needs. In planning and organizing his work, he will wish to take into consideration a number of other relevant factors, such as: community and school conditions and trends of the time that must be strengthened or counteracted. Only in this way can he translate into actualities the social and moral and democratic objectives which the school or the subjects of the school are designed to realize. Thus a history teacher with perspective and a loyalty to the best American ideals, in the period through which we have just passed, might have said very little directly to his pupils about such organizations as the Ku Klux Klan; but if he were studying the period of the Revolution, he could have arranged matters so that his class would have read and discussed the attitude of Washington at the time he resigned his commission and the influence he exerted in the way of tolerance and good sense; or the contrast in Lincoln's attitude toward the South, and that of such extremists as Thaddeus Stevens and the group the latter represented. When reading and class discussions are carefully planned for, but in such a way that questions seem to arise more or less spontaneously, they give desirable trends to the thinking of individuals and they teach lessons that direct moralizing cannot effect. A teacher who is sensitive to the forces for good or for evil that are operating in the home and the school environment will find occasions to organize his teaching accordingly. He will

select material for class study and discussion, or for the leisure-time reading of his pupils, which vitally relates to problems and needs peculiar to the class as a whole, or to individuals within the group.

Thus far we have discussed primarily some of the essential things a teacher will wish to take into consideration in organizing his teaching prior to actual teaching. We have insisted in particular that he professionalize subject matter in the sense of selecting and organizing material from the general field of his subject with special reference to the objectives and ideals of the school and the function the subject is to perform in realizing these aims. The proximate aims we have stressed are those of knowledge and procedure which are implicit in the subject itself; and we have attempted to emphasize the fact that what will be selected will vary not only with the personnel of the group and the individuals in the group, but with the prevailing trends of the environment at any one particular time.

When the unit is thus organized, we reach the phase of the traditional assignment. Up to this point, we have endeavored to anticipate the pupil's point of view and to foresee the best way in which to incorporate subject matter and procedure in his life. The assignment period has for its chief responsibility the identification of the pupil's purposes with those of the teacher. It should not be mere passivity in the one case, and activity in the other. If the planning has been adequate and successful, pupil activity will be insured. Frequently, if not commonly, however, a teacher will find that in presenting the unit to the group some modifications should be made. For this reason it is all the more necessary that his planning should have equipped him with flexible alternatives.

The assignment begins then, usually, as an informal

discussion with the class, in which the teacher lays before the group the unit of work about to be undertaken. He may show how this involves problems or is the further investigation of problems that have arisen out of previous units. The bearing of the work to come upon other subjects to be studied, or its correlations with other work under way, may be revealed and explained. Its value in the way of lighting up out-of-school conditions may be pointed out so that pupils will sense its power to transform the familiar into the unfamiliar or to solve perplexing situations. In short, one of the chief functions of the assignment is to give the pupil a realizing sense of the worth of what he is about to do, and some appreciation of the task as a whole, so that in his subsequent study he will maintain a sense of direction. The precise method followed, however, will vary not only with the class but with the subject. How a teacher will introduce pupils to the reading of the essay or the epic, or to a period of history, or to a principle of mathematics cannot be the same in each case.

When a class understands what is to be done and appreciates something of the values involved in the new undertaking—in short, when pupils are in a position either as groups or as individuals to start working upon the unit—the planning and the assignment phase passes over into the working phase. The last stage in this transition is likely to be marked by detailed directions and explanations of how to proceed. It may involve general instructions or it may perhaps include actual practice in study procedures. For the group as a whole, it may be possible to indicate its termination, but for a teacher who closely observes the needs of his class and responds to these needs, it will be prolonged for certain individuals longer than for others, and, at critical junctures, it will be resorted to during the periods that follow.

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CHAPTER XX

THE WORKING PERIOD

The assignment period, as we have seen, is devoted chiefly to giving pupils an understanding of the nature and the value of the task which lies before them. When the assignment is successfully made, the pupils as well as the teacher have a realizing sense of the significance of the proposed journey. The pupils have secured a bird's-eye view of the route to be traversed and their interest has been enlisted through the teacher's revelation of adventures awaiting them. On the journey that follows (the working period) the bulk of the group will doubtless travel in a body; but with a skillful teacher there is no reason why individuals or small parties should not be encouraged to stop for a time, when especially interested, or, again, progress more rapidly than others in order to gain time for a side excursion of peculiar importance to them. If the final meeting place is clearly agreed upon, all can meet at the proper time and while resting can exchange experiences to their mutual advantage.

In the successful carrying out of such a working period we shall draw heavily upon the contributions of supervised study and individual instruction. Indeed the working period is little more than these two methods functioning as a dominant phase of a teaching procedure. It is preëminently a period of directed study in which the attention of the teacher centers upon the guidance of the learning process.

In this chapter we shall not attempt to make a complete inventory of a teacher's activity in directing the learning

of his pupils. We shall rather content ourselves with a brief mention of his chief responsibilities.

Directing the learning activity of pupils, involves concentrating in each subject upon those habits and those procedures which are peculiar to success in that subject. The literature on how to study is now fairly voluminous but it deals in general with those essentials in study which are more or less common to all subjects. A working period, properly planned for, enables each teacher to concentrate upon the problem of aiding his pupils to acquire those instruments for working which are indispensable for successful advance in his subject matter field. The tendency of recent years to organize special classes on "How to Study" has frequently had the unfortunate result of encouraging teachers of regular subjects to presuppose that they were responsible only for teaching facts, and the "How to Study" teacher for developing the instruments necessary for effective work. These classes have been unfortunate also, in so far as they have diverted teachers' attention from their responsibility for training their own pupils in methods of study essential for success in their respective fields. One of the chief objectives in the teaching of a subject should be to develop in pupils progressively, the ability to proceed independently in that subject. Consequently, methods of procedure are as important as content. Indeed they determine the quality and the quantity of the content which one can acquire. The unit organization, to which we referred in the last chapter, is promising in so far as it is an outline of what children shall do as well as learn. When it is viewed in this way, the work of any one semester or year breaks up into a group of activities designed to realize for the child certain understandings, appreciations, powers and skills. These activities in turn will involve specific readings,

experiments, problems, exercises, excursions, etc., planned directly with reference to those procedures peculiar and essential to success in each subject of the elementary and secondary school.

When teachers concentrate upon developing habits and procedures of work peculiar to the various subject matter fields they will discover, as pioneer workers have already discovered, that there are individual differences in pupils which justify recognition and demand special adaptation of study conditions and methods. That is to say, there is not of necessity a single best way of proceeding. The most effective method in general, or on the average, may exist; but each pupil will have to discover for himself what shall constitute his most efficient working habits. In this self-discovery the teacher must serve as a guide.

For example, Butterweck, in his monograph on "Teaching High School Pupils How to Study," [1] found that a pupil's proficiency in the subject had a direct bearing upon what constituted his best method of studying. From a carefully directed experiment in teaching methods of solving originals in geometry, reviewing for examinations, and reading for the purpose of studying, he found that students differ so considerably that a method most appropriate for one level of ability is not the best method for another level. Thus he writes:

"(a) The group of high intelligence needs a clear demonstration of the use of the elements of the study situation with only sufficient practice to check upon the clarity of the demonstration; (b) the group of low intelligence needs systematic practice in the use of the study situation; such practice requires a motor response for each step, followed by a checking of the correctness of the motor response, so

[1] Teachers College, Columbia University, "Contributions to Education," No. 237, New York City, 1926.

arranged that both teacher and pupil may know the progress made in the use of the study situation." [1]

He also adds:

"The difference in treatment of the pupils of the two extremes in intelligence is not to be thought of as dividing the whole school population into two types, but rather that the two extreme ends of the distribution are so different that different remedial treatment is required and that these differences become less pronounced as the two groups approach each other in intelligence. This would mean that the problem of determining the type of remedial treatment required becomes an individual problem for pupils of average intelligence and that the amount of demonstration is not to be determined by the fact that the pupil's intelligence rating places him in the second or third quarter of the distribution, but by the fact that he demonstrates either proficiency or lack of proficiency in his attack upon the study of new material involving the use of the particular study situation in which proficiency is desired." [2]

In the Open Air Department of the Ethical Culture School, where an experiment is being carried on in providing for differences in ability within the same class group, the teachers have observed similar facts. When, for example, instruction was being given in a history class in outlining or summarizing the thought of a passage or a chapter, the teachers discovered that the capable students could take general instructions and with a minimum of practice proceed somewhat independently; whereas the slower pupils required much more repetition in both instruction and practice. It was possible, accordingly, to release the superior pupils from certain drill procedures in which methods of study were being concentrated upon and to enable them to use this free time for other profitable undertakings.

The results ascertained from studies regarding the com-

[1] *Ibid.*, pp. 78–79.
[2] *Ibid.*, p. 79.

parative merits of the laboratory method versus the demonstration method of teaching science, likewise emphasize the necessity for a difference of procedure as regards learning, corresponding to a difference in ability. Thus W. W. Knox discovered in an experiment in which these two methods were used that: "So far as providing knowledge and method of attack are concerned, the laboratory method is slightly superior to the demonstration method in the case of the average inferior pupil." While, "For the purpose of providing knowledge for both immediate retention and relatively permanent retention and for the purpose of providing a technique for handling new problems, the demonstration method is much to be preferred to the laboratory method in the case of the average superior pupil." [1]

Now these differences as between pupils call for individual adaptation of procedure in the working period. They also necessitate the planning of pupils' work in such a way that the slow and the rapid worker can each employ his time economically and effectively. The implications of this we shall develop in a moment. For the present we wish to draw attention to the further fact that not only does concentration upon supervised study and individual progress enable teacher and pupil to center upon habits of procedure as well as upon content, but it provides as well for what we have considered to be the outstanding contribution of individual instruction: individual mastery of the assignment. This stage of instruction lasts until each pupil has given evidence of mastery or has been set aside for special attention. Each child under this method of instruction must give evidence of mastering the common core. This contrasts with the recitation in several respects. In the first place a pupil no

[1] "The Demonstration Method Versus the Laboratory Method of Teaching High-School Chemistry," *School Review*, XXXV, p. 385 (May, 1927).

longer recites merely upon questions which a teacher chances to ask him. Secondly, it enables teachers and pupils alike to distinguish between what Morrison calls assimilative material and actual mastery. Breslich has shown that many bright pupils in mathematics are required to work a larger number of exercises in order to grasp a point than must slower but more thorough workers. The old method of teaching assigns the same number of problems for all. The method suggested, tests for mastery, and, consequently, the number of exercises worked is of less importance than the results led to. Where a pupil in history or science has been asked to read several references in order to solve certain problems, the reading done functions as a *means* to an understanding rather than as an end in itself. Thus does the emphasis in teaching shift from subject matter alone to subject matter as an instrument for the transformation of the learner.

Concentration upon individual mastery of the common core of an assignment, and adequate provision for individual differences in procedure, as well as mastery of habits of study, involves of necessity an attention to detail which is absent in the traditional recitation. For its effective handling, therefore, teachers will do well to study the contract sheets used in Miss Parkhurst's school. More and more teachers are finding it profitable to provide pupils with guide sheets which indicate what is expected of all pupils but which raise suggestive questions for the stimulation of thinking, provoke informal discussions between pupils and groups, and indicate special readings and supplementary projects for those pupils who may be interested or capable of profiting therefrom.

Attention may be called in this connection to a plan followed in the University of Wisconsin High School for

combining individual and group instruction which does no violence to time schedules, class organizations, or systems of grading.[1]

After the teacher has introduced the class to some fundamental principles in mathematics, some basic understanding in science, a period of history, or a book such as *Ivanhoe*, a series of "contracts" are laid before the pupil. All pupils who satisfy the requirements of the course must master the first contract. The remaining contracts constitute an ascending series and carry with them a corresponding grade. Thus the first contract which all must complete is necessary for an *F* grade, the second for a *G*, and the last for an *E*.

The following plan from Miller and Hargreaves, "The Self-Directed School," will illustrate the way in which the scheme works:

JOB I

This challenge is an illustration of the assignment in the first experiment, conducted in a class of thirty-nine pupils in plane geometry. The class period was one of sixty-five minutes. The time devoted to this assignment was five weeks. . . .

All worked into the challenge as effectively as possible. The idea of parallelism was developed in class discussion. It was tied up with the first big challenge. The text used was Wells and Hart. The citations refer to that text. Three contracts were laid out—F, G, and E—on the basis of which the school marks of Fair, Good, and Excellent were based. All three contracts are integrated; no mechanical separation is suggested.

Poor is a mark rarely used. It is a low passing mark indulged in as an encourager very infrequently.

Fair carries a real mastery of F contract.

[1] See Chapter II of Miller and Hargreaves, "The Self-Directed School"; also *Twenty-Fourth Yearbook*, National Society for the Study of Education, pp. 52–57; and H. L. Miller, "The Contract Plan of Assignment and Some Implications Concerning Procedure," *Educational Administration and Supervision*, Volume XII, pp. 238–250, April, 1926.

Good carries a real mastery of F contract and G contract.

Excellent carries a real mastery of F contract, G contract, and E contract.

N. M. is a mark used to indicate no mastery yet.

In teaching, *i.e.*, in classroom procedure, all participate in any part of the challenge.

F contract embodies the working hypothesis of all the contracts. All must incorporate the significance of working principles. The other contracts illustrate a method of gearing-up principles into higher transmissions ahead.

F Contract. Propositions XIII to XXXII, inclusive, together with the corollaries and at least twenty exercises under these propositions, constituted the core of this contract. In order to earn a mark of Fair the student was aware that a mastery of this contract was imperative. All mastered this contract. The pupil either does or does not show a mastery of the parallelogram, for example. He either does or he does not demonstrate perfectly such a proposition as, the opposite sides of a parallelogram are equal. No half-mastery of this contract is tolerated. All working concepts such as isosceles triangles, right triangles, corresponding angles, medians, etc., had to become automatic as working tools. Thirty-nine pupils made this hurdle. Some of them were thought to be near-mathematical imbeciles.

G Contract. All of F contract, and, in addition, not less than eighty exercises under the propositions and at the close of Book I. Capacity to demonstrate these exercises must be shown. In order to earn a mark of Good, the student was aware that a real mastery of F and G contracts had to be the *sine qua non*.

E Contract. All of F and G contracts, and, in addition, inequalities and the four supplementary theorems together with all the related supplementary exercises in the back of the text. Upon this inclusive contract a mark of Excellent was based. Nine pupils in this class made the E hurdle.

It will be noted that these contracts are cumulative and integrated.

One great advantage of the directed study period is the opportunity it affords for giving adequate attention to individual differences on the part of both problem and capable pupils. A word may be said regarding each.

The literature on new movements in education is becoming increasingly abundant in illustration of the ways in which enrichment of the curriculum may be provided for within a class group. Mention may be made of the method of teaching the classics in the University of Chicago High School. In teaching the essay, for example, the instructor brings to the classroom a large number of books which may serve as material for reading. For some days he advertises different essays by reading from now one, and now another, with the suggestion that in the reading period to follow, those who are interested will find the book available. He thus lays the basis for further reading on the part of the pupils. After this period of advertising, the pupils read for a number of periods from the books already made available. Individual conferences follow in which further suggestions are made as occasion necessitates. From time to time, round-table conferences are held for the purpose of discussing special topics and for stimulating and directing further reading. After a considerable amount of time has been spent in this manner, the pupils are directed along lines of more special and intensive reading and study.

Harland M. Bright and G. L. Bush have described a method employed in the physics and chemistry classes of the John Adams High School, Cleveland, Ohio, which also provides for differences in ability and interest. In this school, "A day or two before the laboratory period several experiments, usually from three to ten in number, are suggested as possible problems. There is suitable discussion of each experiment for the purpose of directing the choice of the pupils. To supply a large number of experiments, many of the standard experiments were divided into several parts. Laboratory manuals were searched for different ideas, and a few experiments were invented. There is always a

unity maintained between the suggested problems and the class work." [1]

These authors give the following lists of problems to illustrate the plan followed:

PHYSICS OUTLINE

The following problems were suggested and undertaken by a class in physics in connection with the subjects of boiling and freezing.

1. Why does a mixture of ice and salt freeze ice cream?
2. Since it takes heat to melt ice, will a liquid give out heat while freezing?
3. Does butter melt at a point 8 to 10 degrees above the point at which it turns to a solid?
4. What are the melting points of paraffin and sealing wax?
5. What are the boiling points of pure water, salt water, and sugar solutions of various strengths?
6. Can the boiling point of pure water be raised by confining steam and thus increasing the pressure?
7. How low can the boiling point be made to fall by boiling water under reduced pressure?
8. How many calories of heat are required to melt a gram of ice?

Since it is highly quantitative, it is evident that the last of these experiments is suitable for only the most capable pupils.

CHEMISTRY OUTLINE

The following problems were suggested in connection with the study of "Nitrogen and Nitrogen Compounds" in a class in chemistry. Each problem was chosen by at least two pupils. Many pupils did more than one-half of the problems.

1. How may nitrogen be prepared from the air, and how does it differ from the other gases previously studied?
2. How may one prepare ammonia? What are its outstanding properties?
3. How can one prove that ammonia is very soluble in water?
4. To form ammonia from organic material as by the use of flour and slaked lime.

[1] *School Review*, XXXIV, p. 783 (December, 1926).

5. To prepare ammonia hydroxide, and to prepare ammonium chloride from it by neutralizing the ammonium hydroxide by the addition of dilute hydrochloric acid.
6. To learn how to detect the presence of ammonium compounds.
7. To prepare nitric acid, and to study its properties.
8. To prepare some of the salts of nitric acid by the use of the acid itself. To study the solubility of nitrates in water.
9. To prepare nitrous oxide, and from it to prepare nitrogen dioxide.
10. To learn how to detect the presence of nitrates.

Because of their relation to later work in the course, it was especially recommended that each pupil do Problems 6 and 10.

In an article contributed to the *Twenty-Third Yearbook*, of the National Society for the Study of Education,[1] E. R. Breslich describes a method employed in the University of Chicago High School for providing for the needs of gifted students in mathematics classes. He writes:

"When the teacher feels convinced that a pupil has done the required work on the fundamental unit, he allows him or encourages him to engage in independent study. Such an investigation is more difficult to carry on in mathematics than in other subjects. Articles and books dealing with mathematical material usually contain facts and symbols with which the pupil gets acquainted only in more advanced courses than the ones he has taken. When he meets these situations, he is unable to proceed without assistance. This may happen almost at the beginning of his reading. After a fruitless struggle of hours or days to see through the difficulty, he becomes discouraged. He may give up altogether or he may exchange the project he started out with for one so simple that it represents no real study or genuine intellectual effort. Until we have a variety of mathematical literature which can be read and understood by pupils who have reached certain levels in the study of mathematics, pupils need the advice of the teacher during the time they are working on a project. To begin with, the topic selected must be quite specific, and careful instructions must be given to make sure that the pupil understands

[1] Part I, pp. 372–378.

what is expected. Definite textbooks must be mentioned in which he is to read. It may be necessary with the younger pupil to give definite page references. To him is left the task of weaving together the facts found in these references into a coherent report.

"This work cannot be carried on without a suitable mathematical library. Many pupils are interested in the historical development of the subject. Hence, the mathematical library should contain books on the history of mathematics. Others enjoy the recreational phases and need to be supplied with material of this type. The journals on secondary mathematics, although written for the teacher, contain much of interest to the pupil which he can read with profit. For this purpose a library should contain the following:

BOOKS ON THE HISTORY OF MATHEMATICS

Allman—*Greek Geometry From Thales to Euclid*
Ball—*History of Mathematics*
Cajori—*History of Mathematics*
Gow—*History of Greek Mathematics*

MATHEMATICAL RECREATIONS

Ball—*Mathematical Recreations and Essays*
Jones—*Mathematical Wrinkles*
Licks—*Recreations in Mathematics*
Shubert—*Mathematical Essays and Recreations*
White—*Scrap Book of Mathematics*

FAMOUS MATHEMATICAL PROBLEMS

Rupert—*Famous Geometrical Theorems and Problems*
Withers—*Euclid's Parallel Postulates*
Young—*Monographs*

FAMOUS MATHEMATICIANS

Frankland—*Story of Euclid*
Smith—*Euclid, His Life and System*

JOURNALS

School Science and Mathematics
The Mathematics Teacher

OTHER BOOKS OF INTEREST

Branford—*A Study of Mathematical Education*
Brewster—*Common Sense of the Calculus*
Bruce—*Some Noteworthy Properties of the Triangle and Its Circles*
Calhoun—*In Algebra Land*
Carus—*Foundation of Mathematics*
Carson—*Mathematical Education*
Conaut—*The Number Concept*
Fine—*Number System in Algebra*
Jackson—*Sixteenth Century Arithmetic*
Manning—*Fourth Dimension Simply Explained*
Morris—*Geometric Drawing for Art Students*
Skyes—*Problems for Geometry*
Thompson—*Calculus Made Easy*
Whitehead—*Introduction to Mathematics*"

If a working period of supervised study and individual instruction affords exceptional opportunities for taking care of the specialized needs and abilities of the capable student, it is equally well adapted for concentrating upon the peculiar needs of problem pupils. The identification and the diagnosis of these pupils will doubtless have occurred at least in a preliminary way before the working period actually begins. That is to say, from previous observation and knowledge of the pupils as well as from the preliminary diagnostic testing, to which we referred in the previous chapter, the teacher will know what pupils are incapable of effective work. The working period is then the time for a more intensive study of pupil difficulties and also for the institution of remedial treatment.

This treatment may be twofold. From our studies of problem pupils we are now beginning to see that defective training in the early years of school life, in what H. C. Morrison calls the fundamental adaptations, may be the

cause for continued poor work throughout one's period of schooling. Professor Morrison cites, for example, the case of a student in the freshman class at the University of Chicago who was about to be dropped from school but was fortunately referred to the high school for corrective treatment. This case was found to be a decipherer. "These people can get the thought, but they get it as an Egyptologist gets the meaning of an inscription in hieroglyphics, or as the typical product of our Latin courses gets the sense of his diploma. They learn to decipher more or less rapidly, but in the end so much of their energy is devoted to the process *that they cannot*, or at least do not, reflect *as they go along*." [1] The boy who, in this case, was referred to the high school for corrective treatment in the fall succeeded in securing a B in two rather difficult content courses in the spring.[2]

Progress in the subject may be due also to gaps in one's training, or to a failure to acquire the general study habits essential for advance in a subject. In the first case it is essential to give remedial instruction at once, while in the second case it may be that additional attention and drill as the pupil progresses will institute the desired improvement.

The second type of treatment, to which we referred a few paragraphs back, is required for those who are hopelessly out of step with their group and who therefore call for administrative treatment. They are the cases to be referred to the school psychologist or some other official who

[1] "Supervised Study," *School Review*, XXXI, p. 594 (October, 1923).

[2] For a complete discussion of other types of reading difficulty, as well as other fundamental adaptations, the reader is referred to Chapter XVI of Morrison's *The Practice of Teaching in the Secondary School*, University of Chicago Press, Chicago, 1926. Chapter XXXI of the same book contains an excellent discussion of the diagnosis and treatment of problem cases.

concerns himself with case studies of problem pupils.[1] An advantage in the unit system of organizing teaching material and concentrating attention upon problem cases during the working period, is that pupil difficulties are met when they arise and are not carefully saved until the end of the semester, or the year, or until such a time that a difficulty is well beyond repair.

Finally, there comes at the conclusion of the working period the testing time and the organization of the work thus far engaged upon. The character of this again will vary with the subject being studied. In history it may consist of a summary or an outline of the references read, or a paper which centers upon certain crucial problems for the solution of which the reading assigned has functioned as raw data. Morrison tells of a physics class that had been studying the unit "lenses" which concluded this unit with a recitation in which pupils selected such applications as the microscope, the telescope, the camera, the stereopticon, and the human eye, and in each case developed therefrom the theory of lenses. At times mastery may be determined from the administering of a subject-matter test. In drill procedures, or in the mastery of such things as common usage in composition, the test, as Morrison very well insists, is the ability of a pupil to apply the skills or the usages in unsupervised situations. Whatever may be the method adopted for determining mastery, it should be clear that the test of mastery is the acquisition of the objectives of the unit to the degree that experience shows is essential for further progress. That is to say, mastery is relative to the subject and the pupil, and what constitutes mastery can

[1] For an excellent treatment of ways in which problem pupils of this character should be handled and an analysis of the representative types of problem pupils, *cf.* Reavis, W. C., *Pupil Adjustment in Junior and Senior High Schools*, D. C. Heath and Co., 1926.

only be determined by a master craftsman in the course of practicing his profession.

Mastery of the learning products, however, does not constitute the last phase of the teaching process. There remains the stage of the socialized recitation. To a brief consideration of this we now turn.

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CHAPTER XXI

THE SOCIALIZED PERIOD

While supervised study and individual instruction in the working period concentrate upon the mastery of learning products, the mastery thus acquired does not constitute the total harvest of teaching. Mastery is fairly tangible and, within limits, measurable; and is consequently confined to only a few educational products. It is necessary as well, however, to concentrate upon the attainment of other less tangible but none the less important educational outcomes. There are certain fundamental emotional and intellectual foundations to be laid, which may be far more productive of good in the life of the child. There are attitudes and dispositions whose seeds of future growth require for their origin and their encouragement the conditions of a social group. As C. L. Robbins very well states: "Without minimizing the importance of knowledge and skill, we may assert the existence of another group of objectives which have equal or greater value. These objectives are: attitudes toward work, toward the teacher, toward other pupils, and indeed toward life or a philosophy of life. Intangible as they are, such attitudes represent matters of the utmost importance in school and life." [1]

A favorable atmosphere has always been a prime requisite for the keenest appreciation of poetry. In early days both the minstrel and his audience postponed his song until the feast was over and the goblets were filled. A congenial audience and the spoken word are still essential conditions

[1] "The Essentials of the Socialized Recitation," *Education*, XLVII, p. 73 (October, 1926).

for awakening a realizing sense of the rarest values in literature. The same is true of other intellectual appreciations and discriminations. The give and take of class discussion helps to test conclusions that might otherwise be uncritically accepted and generates ideas that would otherwise remain unborn. Suggestions and criticisms that come forth from group contacts may become starting points for individual and personal as well as group reflection. In so far as they serve as beginnings for further study they will give substance to new assignments. In such subjects as science and history, particularly, class discussions can function as invaluable instruments for opening up new territories for exploration as well as for revealing the need of more intensive cultivation of ground already broken.

Accordingly, it may be well to enumerate briefly in this concluding chapter some of the functions which a socialized period can serve.

First of all the socialized period affords a convenient and practical opportunity for discussing new work to be undertaken. This may be of several kinds, involving either the entire class group or only a portion of the class. The entire class may be called together, when a sufficient basis has been laid in the working period, for considering the best methods of attack upon a new unit or a new aspect of a unit. This has the advantage of concentrating common attention and interest upon the new phases of the work to be undertaken which are alike for all. It also enables the teacher, as we shall see presently, to draw out from the general class discussion the educational principles of vital concern to all. These discussion periods may be planned as well for a section of a class, which may have kept fairly well together, for comparing notes on progress, discussing common problems of interest and importance, and for determining upon

some side expedition that relates to the common unit but which is not of equal interest or importance to all. Similarly, during the working period, subgroups within the main class group should be encouraged to get together for the purpose of clearing up common difficulties or following to a conclusion an interest in a common problem. Such discussions are invaluable for developing intellectual habits, essential alike in scientific procedure and the exercise of intelligent citizenship. We refer to such habits as open-mindedness, the tolerance of opinions antagonistic to one's cherished views, the sense of fair play, and adherence to the rules of free discussion and expression of thought. It is through such repeated experiences in the classroom that it is possible to train children to respect intellectual honesty, to consider the merits of opinions different from their own, and to submit their views to the acid test of facts.

The socialized period is indispensable in still other respects. As we have seen in our discussion of the project method, the project frequently fails because it bears no other fruit than what is most obviously contained in a specific project. Before a new project or a unit of study is undertaken, the one upon which pupils are already engaged should be scrutinized for the purpose of bringing to light consciously the educational values implicit within it. This may be in the nature of identifying principles already familiar or relating work done to studies as yet to be made, or applying what has been learned to other realms of a child's life. What, for example, may have been no more than a study of the city's water supply may now become in addition an understanding of certain principles of hydraulics; or what has been in the supervised study period a series of exercises designed to clench a mathematical principle, may become a deeper and wider understanding of

the same. A careful study of some period in history, such as the industrial revolution, may well lead to a ramified understanding of the effects of invention and change in industrial conditions upon the lives of people. Or again, what has been merely an absorbing laboratory experiment may transfigure what have hitherto been dull and drab and commonplace environmental facts.

It is in this period, also, that the entire group can profit from the special undertakings of those pupils who have completed their individual work in advance of the bulk of the pupils and who are then permitted to undertake supplementary projects. Floor talks, demonstrations, and special reports from individuals and groups will be engaged in, as tangible recognitions of worthy achievement beyond the ordinary level of requirements, and for the purpose of enriching special topics of discussion. Here, as on other occasions, the unit being studied will determine what can appropriately be done.

The method of conducting a socialized period will vary with circumstances and the aims the teacher has in mind to accomplish. At times, the teacher will carefully guide the discussions. Frequently he may wish to use this period in ways much similar to the traditional recitation and will rely primarily upon questions and answers. When thus engaged in testing knowledge, however, it is well to observe that this recitation differs from the traditional procedure in that it either follows a learning period or learning is well under way. There will always be a place for a recitation which tests knowledge, after a period of adequate study, or which seeks to reorganize this knowledge so that it will function vitally in new situations. Moreover, there will always be occasions for using the recitation for receiving organized reports on a topic or a unit as a whole, in written

or oral form; for reports on special investigations which bring into play principles previously studied; and for reviews and summaries which "tie up" material read.

Dr. Bode, in his recent book on *Modern Educational Theories*, states very forcibly the use which the Socratic question may serve in this connection. "The cultivation of thinking," he remarks:

"is an undertaking that calls for much more art in teaching than does the inculcation of more or less routine learning. The analysis of the process that we call "thinking" affords various clues which may be useful to a teacher. It may be worth while, however, to suggest that one way of stimulating thinking is clearly through the conduct of the recitation. Here we can profitably take a leaf from Socrates' book. The method which has come down through the centuries as the Socratic method is, in the main, the question-answer method, so directed as to make the learner develop and amplify what he has learned through a variety of applications. This procedure may start with a seemingly isolated fact or proposition and relate it to other facts or propositions in such a way that the entire set of facts must be reinterpreted in order to make them fit together. As an illustration we may take the hypothesis of the circulation of the blood. In order to reconcile this hypothesis with the known facts of the organism, it was necessary to reinterpret the function of heart and lungs and blood vessels so as to reach a new conception of the manner in which a living organism maintains itself. All this was once a problem of hard scientific thinking. The chief difference between the scientist and the pupil is that, in the case of the pupil, the process of reorganization or reinterpretation of experience takes place under the guidance of the teacher. It is, however, something that the pupil must do for himself. The art of the teacher consists in knowing how to ask questions, how to suggest relevant facts, and how to present difficulties and suggest leads; and in appreciating the value, on occasion, of following up a false trail. The teacher's task is to furnish a maximum of stimulation and guidance, without hindering the pupil in the work of rebuilding his world." [1]

[1] From *Modern Educational Theories*, pp. 216–217, 1927. By permission of The Macmillan Company.

At other times the teacher will turn the socialized period over to the pupils. On such occasions pupils will take charge of the group for the purpose of directing their own plans with reference to activities of the class as a whole; or, again, committees will direct and control the trend of discussion. Procedure will take its cue from the peculiar purposes to be realized. Generally, when pupils are placed in charge, the objectives center rather specifically upon developing general citizenship qualities and habits of group coöperation.

Robbins calls attention to a number of academic skills which the socialized recitation, by virtue of its social character, is admirably designed to foster. He writes:

"Skill in the presentation of materials studied is of greater importance in the socialized recitation than in the class conducted by the question-and-answer method or the topic method as usually understood by teachers and pupils. Ordinarily the pupil recites merely or chiefly to show the teacher that he has studied effectively. In the socialized recitation, however, any presentation of material or discussion of ideas is largely for the benefit of the pupils. Hence skill in this particular is highly essential.

"Skill in presentation on the part of one person should be supplemented by skill in getting and using on the part of others. A great deal of the deadness of the ordinary class recitation is due to the fact that what is recited is of little interest or no interest to any one else, and aids no one but the reciter in the giving. In a properly planned and conducted socialized recitation, however, most of the work has a definite connection with the needs and interests of all members of the class. If a report or discussion is pointless, rambling, obscure, or irrelevant, the loss falls not merely upon one pupil but upon the whole group. A recognition of this fact is one of the bases of proper social pressure.

" The judging of values is another matter that demands the development of skill—values of materials and of time and effort. A great deal of the criticism of the socialized recitation is due to weakness in this single detail. Random discussion, time-killing, the airing of poorly

considered opinion, and waste of time in personal bickering, are not characteristics of the genuinely socialized recitation. They are abuses that characterize the classes of teachers who have not devoted hours of thought and planning to the problem of developing in their pupils a sense of values and providing practice in its use." [1]

In these three phases of a teaching method, the assignment and lesson planning period, the working period, and the socialized period, we have the main outlines of a teaching technique which includes the special contributions of the various methods discussed in Part III. They are not to be thought of as "steps" in the Herbartian sense, rigidly related in a chronological or a logical manner. Motivation in the form of a sense of direction, clearly understood reasons for doing what one is doing, identifying the pupil emotionally with the task that confronts him, is necessary at the beginning of an undertaking, but it is equally important during each stage of his learning. Consequently, when a teacher discovers pupils have lost their way, or no longer appreciate the significance of their work, it is essential to pause and assist them to regain their bearings. Socialized activity and supervised study also tend at times to merge into each other. Thus it may be profitable during a period of individual instruction for pupils to lay down their work and join in a class discussion which will send each one back to his work with renewed interest. Individual instruction likewise makes it possible for the teacher to gather together small groups who are working at about equal rates or on the same level of effectiveness and to discuss with them peculiar aspects of their work which apply particularly to them, and which will stimulate both individual and group thinking.

Occasionally individual study, during the working period, will give place to coöperating groups. Most subjects lend

[1] *Op. cit.*, p. 77.

themselves admirably to an organization in which pupils work as committees on different aspects of the common problem. One of the distinctive features of the Dalton Laboratory Plan in Miss Parkhurst's school, as we have seen, is the careful way in which methods of coöperative work are planned for, and fostered by, the laboratory teachers.

There is a place also for a social type of work that stimulates service to one's fellows which teachers should encourage to every extent possible. We refer to the guidance and the assistance which rapid workers and capable students can give to their slower classmates. Such work must, of course, be carefully controlled and guided but there are many ways in which it may lead to the good of the rapid as well as to that of the limited worker. The writer knows of one teacher who performed an invaluable service for an exceptionally bright boy, who had a tendency to work superficially, by asking him to assist a slower but a much more thorough and conscientious worker. The attention which the slower worker insisted must be given to details, and the questions which he raised that had not occurred to the former yielded both intellectual and spiritual returns.

We would conclude, then, with the statement that successful teaching requires that the teacher have in mind a generalized procedure, a teaching technique, which determines the major emphasis of his work; but it is equally important that these procedures do not become formalized. The essentials in teaching are to plan consciously for learning situations which motivate a pupil's work through an understanding and appreciation on his part of the significance of what he is to undertake, which promote thoroughness and persistence and responsibility in study by means of both the stimulus of group contacts and intelligently planned

opportunities to progress according to individual needs; and a formulation of what has been learned in such a manner that it leads to further growth.

Such a teaching procedure will at times be free and informal. At other times it will be carefully controlled and regulated. It will never be stereotyped. And, in so far as we adopt it, our conception of the teacher as primarily a hearer of lessons will give way to a conception more analogous to that of a scout master who leads his group into a country familiar to himself but filled with adventure and wonderful opportunities for the moral and intellectual development of his followers.

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